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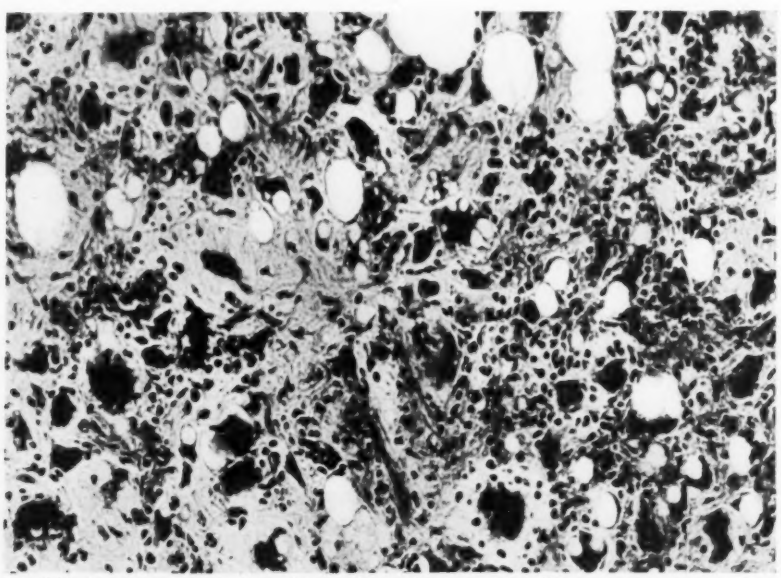

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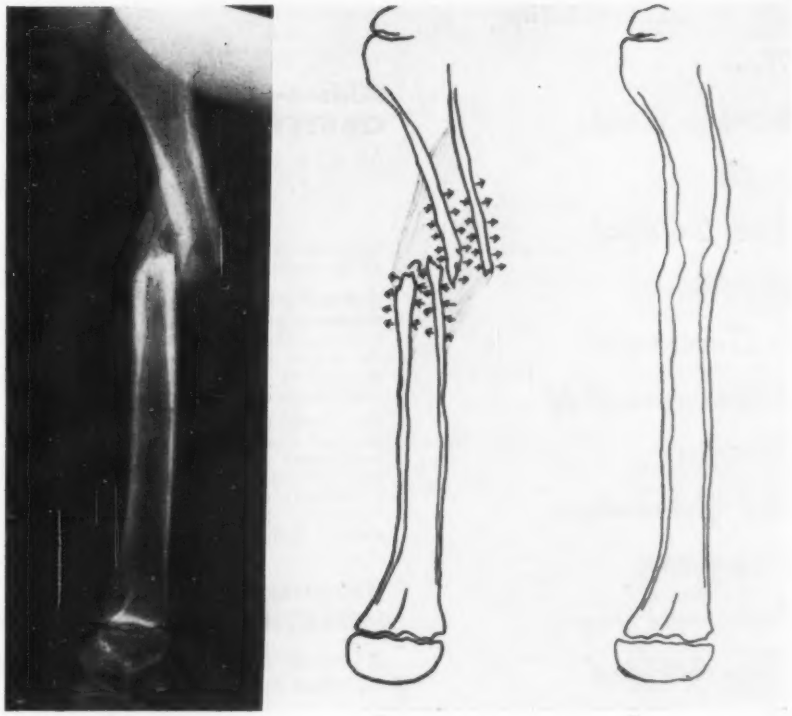

A *B* *C*

Fig. 18. *A*, Roentgenogram of fractured femur showing angulation. *B*, Drawing of bone shown in *A*. Arrows pointing away from cortical surface indicate lysis. Those pointing toward cortical surface indicate apposition. Under influence of stress there is gradual shifting and realignment without reducing bone mass or diminishing bone strength. *C*, Eventually alignment may be achieved due to bone shifting into the trajectories of stress.

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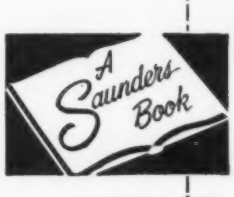

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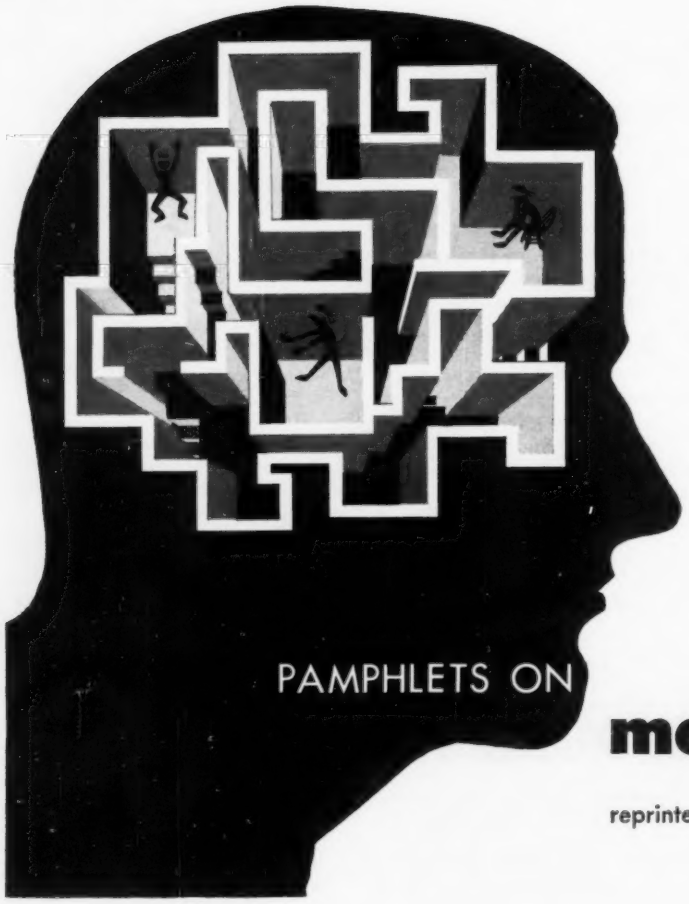

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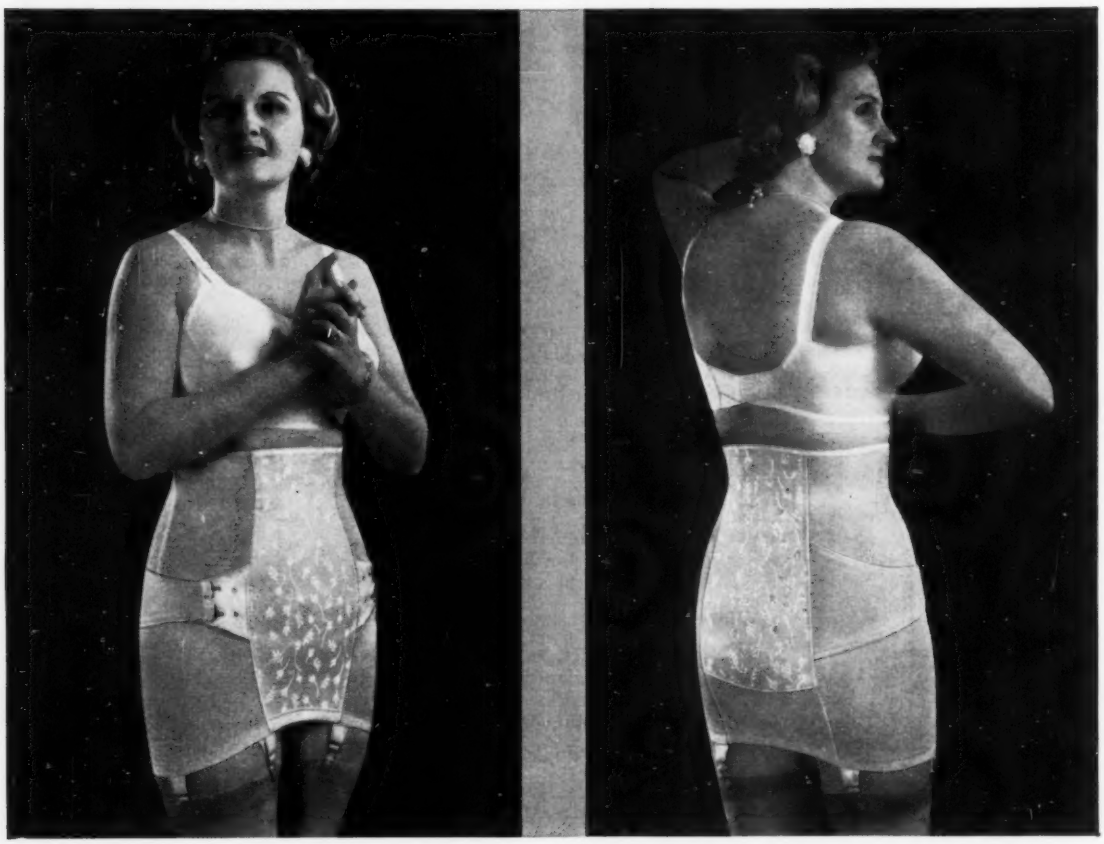

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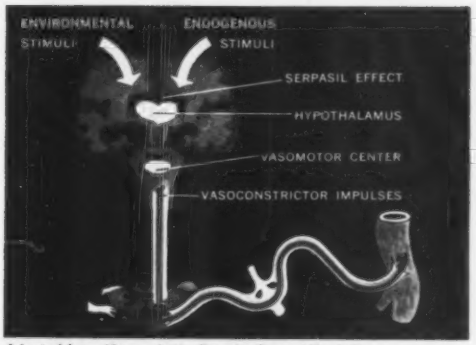
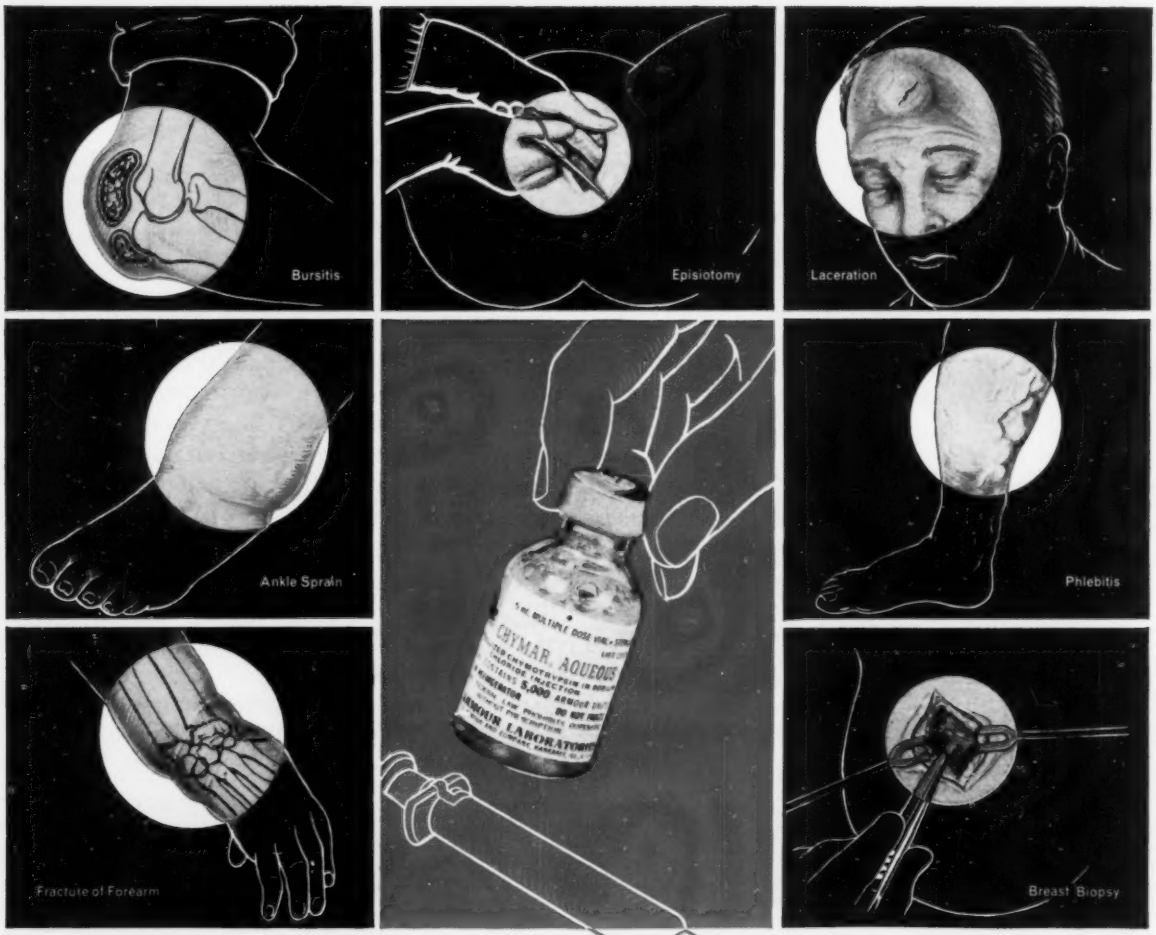


Adapted from Moyer, J. H., Dennis, E., and Ford, R.: Arch. Int. Med. 96:530 (Oct.) 1955.

CIBA SUMMIT, N. J.



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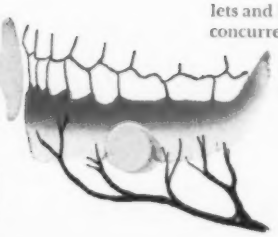

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Smith, C.W., and Thomas, C.G.: Am. Pract. & Digest Treat. 8:920 (June) 1957.

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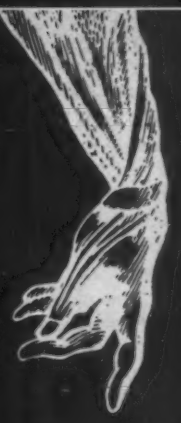

—a remarkably efficient skeletal muscle relaxant, unique in chemical formulation, and outstanding for sustained action and relative freedom from adverse side effects.

PUBLISHED REFERENCES: 1. Carpenter, E. B.: Southern Medical Journal 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Little, J. M., and Truitt, E. B., Jr.: J. Pharm. & Exper. Therap. 119:161, 1957. 4. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: J. Am. Pharm. Assn., Sci. Ed. 46:374, 1957. 5. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 6. Park, H. W.: J.A.M.A. 167:165, 1958. 7. Truitt, E. B., Jr., and Patterson, R. B., Proc. Soc. Exper. Bio. & Med. 93:422, 1957. 8. Truitt, E. B., Jr., Patterson, R. B., Morgan, A. M., and Little, J. M.: J. Pharm. & Exper. Therap. 119:189, 1957.

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CONDITION	NO. PATIENTS	RESPONSE			
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Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2[2]		pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Torticollis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle soreness due to accidents	5	3	2	—	—
STUDY 3[5]		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
STUDY 4[6]		"significant"			
Pyramidal tract and acute myalgic disorders	30	27	—	2	1
TOTALS	138	104 (75.3%)	28 (20.3%)	4	2

THE JOURNAL of the American Medical Association

"An excellent result, following methocarbamol administration, was obtained in all patients with acute skeletal muscle spasm."[5]

THE JOURNAL of the American Medical Association

"In no instance was there any significant reduction in voluntary strength or intensity of simple reflexes."[6]

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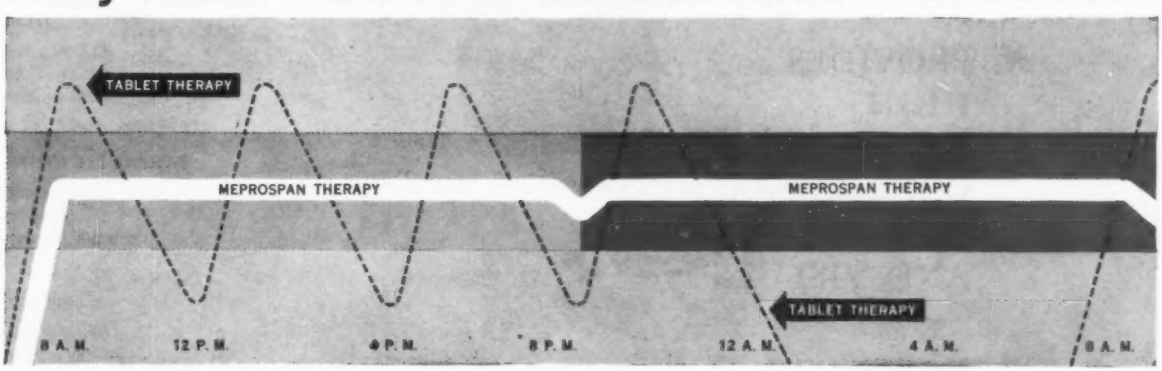

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after 500 mg. dose)

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1. Shidlovsky, B. A., et al.: In Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 459.
2. Pulaski, E. J., and Isokane, R. K.: Antibiotic Med. 4:408, 1957.
3. Buckwalter, F. H., and Cronk, G. A.: Ibid. 5:46, 1958.

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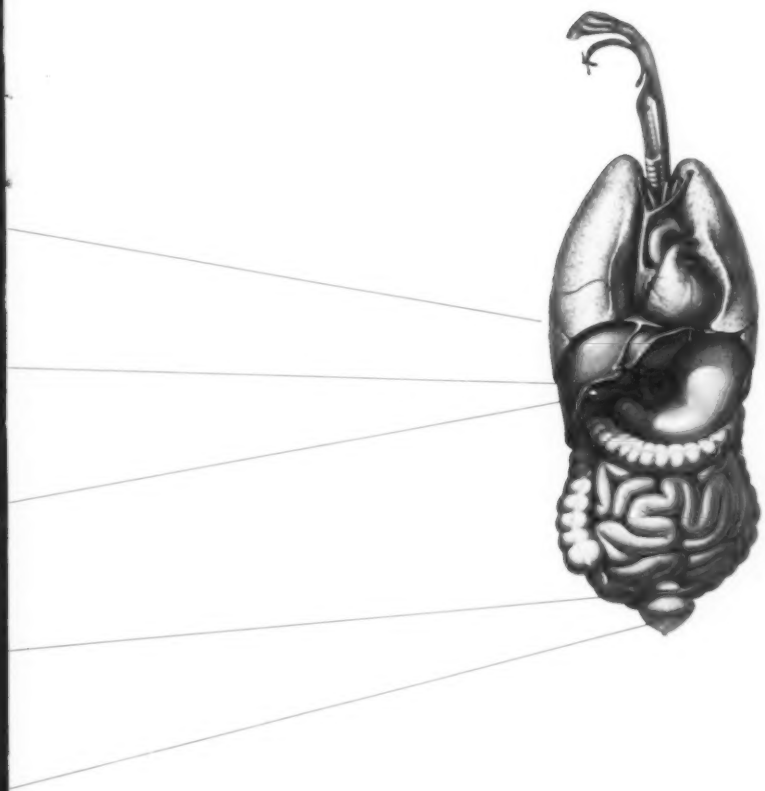

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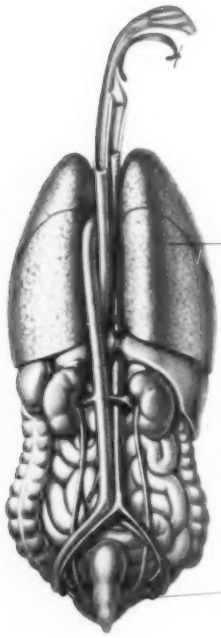

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1. Cronk, G. A., et al.: In Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 397. 2. Rein, C. R., and Fleischmajer, R.: Antibiotic Med. 4:422, 1957. 3. Putnam, L. E.: Ibid. 4:470, 1957. 4. Prigot, A., et al.: Ibid. 4:287, 1957. 5. Council on Drugs, A.M.A.: J.A.M.A. 166:50, 1958. 6. Shidlovsky, B. A., et al.: In Antibiotics Annual 1957-1958, *vide supra.*, p. 459.

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WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

A. M. A. Asks Mortgage Guarantees for Nursing Homes . .
Congress Considering "Overhead" for Medical Research . .
Appropriation Requested for Research on Staphylococcus . .
Appeal Made to Save Medicine's Status in FCDA-ODS Merger . .

A. M. A. ASKS MORTGAGE GUARANTEES FOR NURSING HOMES

The American Medical Association believes Congress should authorize U. S. mortgage loan guarantees for proprietary as well as public and nonprofit nursing homes, hospitals, and chronic disease facilities.

Presenting the Association's testimony to a subcommittee of the Senate Banking and Currency Committee, Dr. R. B. Robins of Camden, Ark., recited the century-long interest of the A. M. A. in problems of the aged and said, "This interest continues right down the line to the family physician who is on the scene when the various medical crises occur in the lives of older people."

Dr. Robins, a past vice-president of the A. M. A. explained that a majority of state medical societies have committees working on problems of the aged, and that the A. M. A. in cooperation with the American Dental Association, the American Hospital Association, and the American Nursing Homes Association, is participating in work of a Joint Council to Improve the Health Care of the Aged. The Council's long-range goal, he said, "is better health for the aged; its most immediate concern is working out answers to meet the financial and social problems that accompany chronic illness."

Most of the aged population, Dr. Robins declared, need a certain amount of skilled nursing care and medical care, not necessarily expensive hospital care. They could receive "the maximum professional attention their condition calls for in a less expensive facility—a properly constructed and operated nursing home, with professional medical and nursing care at hand or readily available," he said.

Dr. Robins told the subcommittee that the nursing homes have difficulty obtaining credit on reasonable terms, because the usual lending agencies hesitate to take the risk on a "one-purpose" structure without government underwriting.

Rep. Thomas Curtis (R., Mo.) also testified in favor of mortgage guarantees for nursing homes, saying "Older people need more medical attention than younger people, but do not need constant doctor care, nor do they need constant nursing care. Yet ofttimes they are confronted with the choice of staying home or going to a hospital." (For more on Mr. Curtis' testimony see "Quote of the Week.")

Under present law, public and nonprofit nursing homes are offered federal help in the form of grants or loan guarantees, but this assistance is denied proprietary nursing homes, except in a few instances and then under terms that are too restrictive.

Rep. Thomas B. Curtis, testifying in support of federal mortgage guarantees for proprietary nursing homes, said:

"What should be one of the greatest boons to mankind has in some respects become a bane. I believe it is well within our power to give the boon real meaning. However, it requires some clear thinking of what should be done. . . .

"The problem of the aged is to a large degree a financial problem. Most older people are on fixed incomes. Pensions, social security or retirement have been thrown out of kilter. . . .

"One way in which we can help these older citizens is to analyze with some care just what their needs are and see if we cannot provide the facilities that are tailored to their needs. . . .

"What we need is not nursing homes in the traditional way we know nursing homes to be. Nor do we need old folks homes as we have known them. We need an entirely new type of facility. It may be a village of old folks, such as I have read has been established in Arizona. It may be just homes clustered around a medical facility that is set up to care for older people. . . .

"Ninety-seven per cent of the nursing homes for the aged today are private institutions. . . . All that is needed now is to give some encouragement to private enterprise to move more effectively into the area of administering to the needs of our aged people. The federal government is in a very logical position to do just this through the FHA program."

PLEA FOR "OVERHEAD ALLOWANCES" FOR BASIC RESEARCH

Before winding up its public hearings on the appropriations bill for the Department of Health, Education, and Welfare, the Senate subcommittee

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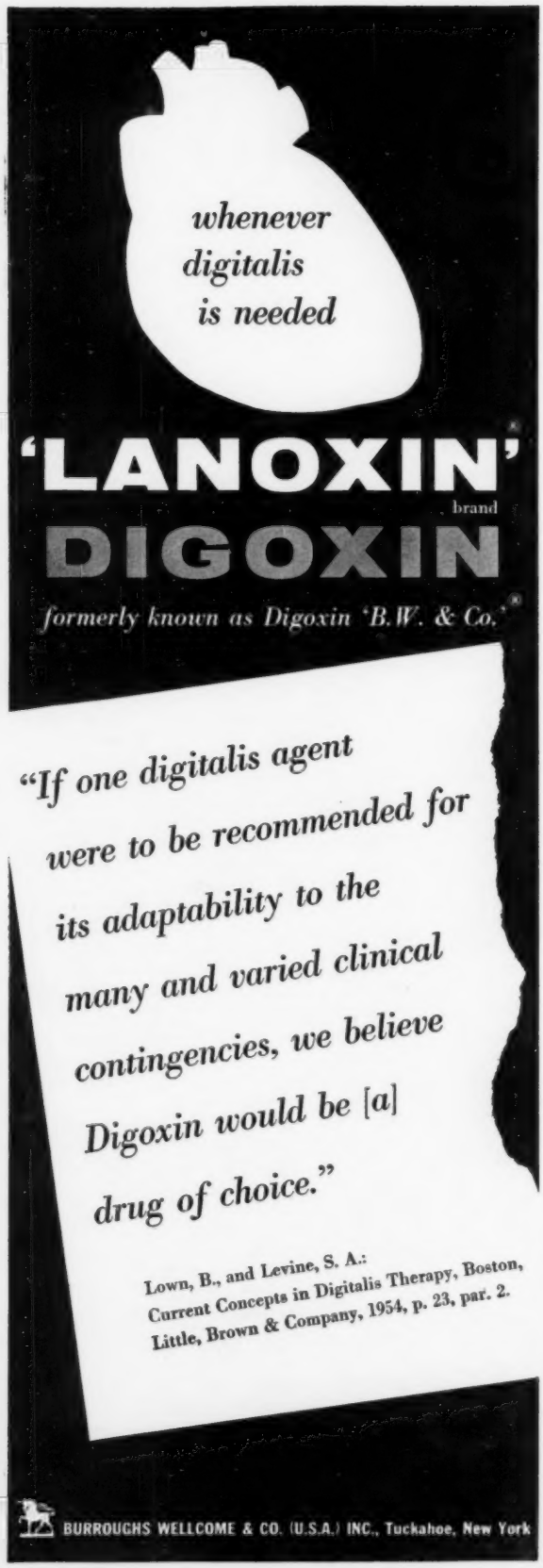
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Lown, B., and Levine, S. A.:
Current Concepts in Digitalis Therapy, Boston,
Little, Brown & Company, 1954, p. 23, par. 2.
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heard a new plea for allowing medical schools and other research groups up to 30% for overhead costs in connection with federal research grants. The appropriation subcommittee headed by Sen. Lister Hill (D., Ala.) also was asked by a group of medical scientists for new funds for basic research outside the framework of disease categories.

Dr. John B. Youmans, dean, Vanderbilt University School of Medicine and immediate past-president of the Association of American Medical Colleges, made the plea for raising overhead costs from the present 15% ceiling. He noted that medical schools are doing the greatest part of medical research, while at the same time they are being hard pressed for funds to maintain, enlarge, and improve their teaching programs.

"To contribute to the indirect costs of government-sponsored research from tuition is, in effect, to subsidize such research from the pockets of the students. The fact is that the medical schools, struggling to maintain themselves, should not be required to use their own limited funds for the indirect costs of this research, money which they cannot afford and which impairs their ability to maintain an adequate program of medical education. It is not only fair just that the medical schools be reimbursed for the total cost of this research, it is also in the public interest."

Drs. Philip Handler of Duke University, Carroll Williams of Harvard University Medical School, and Robert A. Aldrich, University of Washington Medical School, asked for at least 20 million dollars for fundamental research projects and 10 million dollars for training grants in the basic medical and biological sciences. They would have the money appropriated to the National Institutes of Health.

Dr. Handler, who spoke for the Federation of American Societies for Experimental Biology, testified: "Applied medical research, quite properly, has been supported on an expanded scale but, unfortunately, without a proportional expansion of fundamental research. In consequence, fruitful clinical investigations may shortly have gone as far as our basic knowledge of biology permits. It is therefore imperative that fundamental research be adequately supported also."

AHA REQUESTS FUNDS FOR RESEARCH ON STAPHYLOCOCCUS

The Senate appropriations subcommittee concerned with federal medical spending has received an urgent plea from the American Hospital Association for research funds for prevention and control of Staphylococcus infections in hospitals.

"The need is critical and the problem transcends state boundaries," Dr. Frederick H. Wentworth, of the Ohio State Department of Health and a member of an AHA committee on infections within hospitals, told the subcommittee headed by Sen. Lister Hill (D., Ala.).

Dr. August H. Groeschel of the New York Hospital and member of the infections committee suggested one million dollars be voted for research through the National Institute on Allergy and Infectious Diseases, plus another $500,000 for the Communicable Disease Center for the conduct of field studies, for control activities, and to give

added support to state laboratories. "This is a reasonable figure with which to initiate an expanded program," Dr. Groeschel declared.

The witness said that many of the country's hospitals already have had serious problems with staphylococci infections and that all hospitals have a potential problem. Dr. Groeschel cited the fact that infections from antibiotic-resistant staphylococci constitute the main difficulty. These strains are largely a by-product of the widespread use of antibiotics which eliminate the susceptible strains of staphylococci, he told the committee.

The most obvious examples, Dr. Groeschel said, are infections in the skin of newborn infants and children, in newly delivered mothers, in burns, and in incisions made during surgery and pneumonia in debilitated patients. "The problem is of special significance to hospitals because hospitals are clearly the principal reservoir of most antibiotic-resistant strains of staphylococci. . . . Patients who acquire these infections in the hospital are potential spreaders of resistant strains to the community after discharge."

Dr. Wentworth expressed the view that, if the problem "goes uncontrolled, there will be decreased public confidence in hospitals."

The committee has heard more than a score of nongovernmental witnesses representing a wide range of interests in the various items within the Health, Education, and Welfare budget.

APPEAL TO SAVE MEDICINE'S STATUS IN FCDA-ODM MERGER

In a letter to Chairman Chet Holifield of a House government operations subcommittee, the American Medical Association urges that health functions be recognized as a top level operation in any reorganization of the Federal Civil Defense Administration and the Office of Defense Mobilization.

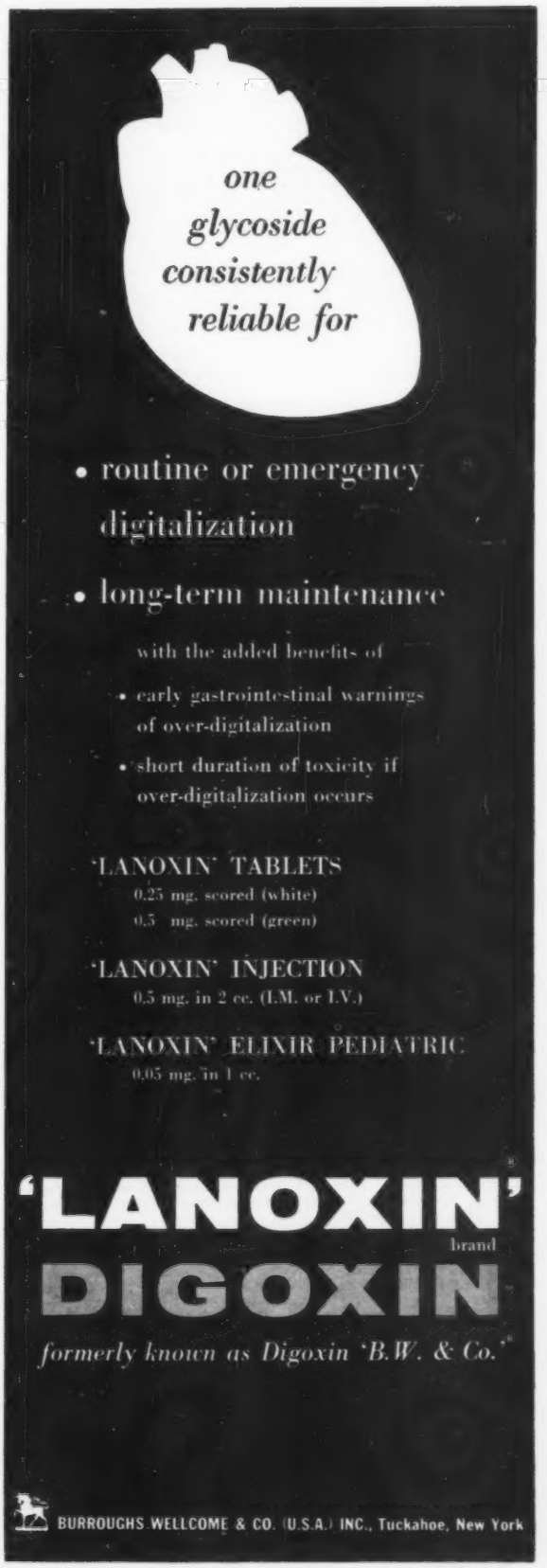
The Holifield subcommittee has before it a presidential reorganization plan that would merge the two organizations into the Office of Defense and Civilian Mobilization. Instead of an independent agency—such as FCDA and ODM—the new unit would operate out of the President's Office, and he would have power to eliminate or reassign its responsibilities in any way he saw fit.

One result probably would be reassignment of health and medical functions of both the FCDA and the ODM to the U. S. Public Health Service.

The A. M. A. letter, signed by General Manager Blasingame, recounted that two years ago the House of Delegates approved the broad objective of strengthening the federal civil defense program, "but was of the opinion that the method of accomplishing this was a matter for determination by the Congress with the advice and assistance of the President and the state governments. . . ."

On the importance of medical operations, Dr. Blasingame declared: "The Association believes that the health and medical functions of the FCDA and the ODM must be maintained at top level in the organization of the proposed Office of Defense Civilian Mobilization for the good of our country and our people should our nation ever again be confronted with another national emergency."

The merger automatically will go into effect on July 1 unless prior to that time either House or Senate passes a motion of disapproval.



MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1958 Annual Meeting, San Francisco, June 23-27.
1958 Clinical Meeting, Minneapolis, Dec. 2-5.
1959 Annual Meeting, Atlantic City, June 8-12.
1959 Clinical Meeting, Dallas, Texas, Dec. 1-4.

AMERICAN

June

American Academy of Tuberculosis Physicians, San Francisco, June 21. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Secretary.

American Association of Neuropathologists, Claridge Hotel, Atlantic City, N. J., June 15-18. Dr. Leon Roizin, 722 W. 168th St., New York 32, Secretary.

American College of Angiology, Fairmont Hotel, San Francisco, June 21-22. Dr. Alfred Halpern, 15 E. 62d St., New York 21, Executive Secretary.

American College of Chest Physicians, Fairmont Hotel, San Francisco, June 18-22. Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11, Executive Director.

American Dermatological Association, Challenger Inn, Sun Valley, Ida., June 4-8. Dr. J. Lamar Callaway, Duke Hosp., Durham, N. C., Secretary.

American Diabetes Association, Mark Hopkins Hotel, San Francisco, June 21-22. Dr. Franklin B. Peck Sr., 1 E. 45th St., New York 17, Secretary.

American Electroencephalographic Society, Hotel Traymore, Atlantic City, N. J., June 12-14. Dr. Jerome K. Merlis, Univ. Hosp., Baltimore 1, Secretary.

American Geriatrics Society, Mark Hopkins Hotel, San Francisco, June 19-20. Dr. Richard J. Kraemer, 2907 Post Road, Warwick, R. I., Secretary.

American Goiter Association, St. Francis Hotel, San Francisco, June 17-19. Dr. John C. McClintock, 149½ Washington Ave., Albany, N. Y., Secretary.

American Life Convention, Medical Section, Broadmoor Hotel, Colorado Springs, Colo., June 9-11. Dr. John E. Boland, 5801 Sheridan Rd., Chicago 40, Chairman.

American Medical Association, Sheraton-Palace Hotel, San Francisco, June 23-27. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Medical Women's Association, Inc., San Francisco, June 19-22. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Neurological Association, Claridge Hotel, Atlantic City, N. J., June 16-18. Dr. Charles Rupp, 133 S. 36th St., Philadelphia 4, Secretary.

American Proctologic Society, Los Angeles Statler, Los Angeles, June 29-July 3. Mr. Norman D. Nigro, 10 Peterboro St., Detroit 1, Executive Secretary.

American Rheumatism Association, San Francisco, June 20-21. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

American Society of X-Ray Technicians, Adolphus Hotel, Dallas, Tex., June 7-12. Miss Genevieve J. Eilert, 16, 14th St., Fond du Lac, Wis., Executive Secretary.

American Therapeutic Society, Mark Hopkins Hotel, San Francisco, June 19-22. Dr. Oscar B. Hunter Jr., 915 19th St., N. W., Washington 6, D. C., Secretary.

Association for Research in Ophthalmology, Fairmont Hotel, San Francisco, June 23-27. Dr. Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6, Secretary.

Catholic Hospital Association of the United States and Canada, Atlantic City, N. J., June 23-26. Mr. M. R. Kneifl, 1438 S. Grand Blvd., St. Louis 4, Mo., Executive Secretary.

Eastern Psychiatric Research Association, New York Univ. Medical School, New York, June 5. For information write: Dr. David J. Impastato, 40 Fifth Ave., New York.

Maine Medical Association, The Samoset, Rockland, June 22-24. Dr. Esther M. Kennard, P. O. Box 240, Brunswick, Secretary.

Medical Library Association, Kahler Hotel, Rochester, Minn., June 2-6. Mrs. Henrietta T. Perkins, 333 Cedar St., New Haven 11, Conn., Secretary.

National Medical Veterans Society, San Francisco, June 21-22. Dr. Henry C. Beekley, 3117 Warsaw Ave., Cincinnati, Secretary.

North American Chapter of the International Cardiovascular Society, Sir Francis Drake Hotel, San Francisco, June 21. Dr. Henry Haimovici, 105 E. 90th St., New York 28, Secretary.

Society for Investigative Dermatology, Clift Hotel, San Francisco, June 21-22. Dr. Herman Beerman, 255 S. 17th St., Philadelphia 3, Secretary.

Society of Nuclear Medicine, Beverly Hilton Hotel, Los Angeles, June 19-21. Dr. Robert W. Lackey, 452 Metropolitan Bldg., Denver, Secretary.

The Endocrine Society, St. Francis Hotel, San Francisco, June 19-21. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Okla., Secretary.

Woman's Auxiliary to the American Medical Association, San Francisco, June 23-27. Miss Margaret Wolfe, 535 N. Dearborn St., Chicago 10, Secretary.

Wyoming State Medical Society, Jackson Lake Lodge, Moran, June 9-12. Mr. Arthur R. Abbey, Box 2036, Cheyenne, Executive Secretary.

July

American Society of Facial Plastic Surgery, New York, July 23. Dr. Samuel M. Bloom, 123 E. 83d St., New York 28, Secretary.

American College of Surgeons, Sectional Meeting, Concert Hall, Stockholm, Sweden, July 2-7. Dr. Michael L. Mason, 40 E. Erie St., Chicago 11, Chairman.

Idaho State Medical Association, Sun Valley, July 6-9. Mr. Armand L. Bird, 384 Sonna Bldg., Boise, Executive Secretary.

Intermountain Pediatric Society, Sun Valley, Ida., July 4-6. Dr. Thales H. Smith, 220 N. University Ave., Provo, Utah, Secretary.

Rocky Mountain Cancer Conference, Shirley-Savoy Hotel, Denver, July 9-10. Alexis E. Lubchenco, 835 Republic Bldg., Denver 2, Chairman.

United States Section, International College of Surgeons, Eastern Regional Meeting, Manchester, Vt., July 1-5. Dr. M. Leopold Brodny, 636 Beacon St., Boston, General Chairman.

August

American Congress of Physical Medicine and Rehabilitation, Philadelphia, Bellevue-Stratford Hotel, Aug. 24-29. Dr. Frances Baker, 1 Tilton Ave., San Mateo, Calif., Secretary.

American Hospital Association, Palmer House, Chicago, Aug. 18-21. Dr. Edwin L. Crosby, 18 E. Division St., Chicago 10, Director.

American Veterinary Medical Association, Sheraton Hotel, Philadelphia, Aug. 18-21. Dr. J. G. Hardenbergh, 600 S. Michigan Blvd., Chicago 5, Executive Secretary.

Biological Photographic Association, Shoreham Hotel, Washington, D. C., Aug. 19-22. Miss Jane Waters, Box 1668, Grand Central P. O., New York 17, Secretary.

Chemical Organization of Cells, Normal and Abnormal, Madison, Wis., Aug. 21-23. Dr. J. F. A. McManus, Univ. of Alabama Medical Center, Birmingham, Ala., Chairman.

International College of Surgeons, Regional Meeting, Western Section, The Riverside Hotel, Reno, Nev., Aug. 21-23. For information address: Dr. Leo D. Nannini, 190 Mill St., Reno, Nev.

National Medical Association, Hotel Schroeder, Milwaukee, Aug. 11-14. Dr. John T. Givens, 1108 Church St., Norfolk, Va., Secretary.

Northwest Proctologic Society, Sun Valley, Ida., Aug. 27-29. Dr. John McKay, 645 Medical Dental Bldg., Seattle, Secretary.

West Virginia State Medical Association, The Greenbrier, White Sulphur Springs, Aug. 21-23. Mr. Charles Lively, P. O. Box 1031, Charleston 24, Executive Secretary.

World Medical Association, Copenhagen, Denmark, Aug. 15-20. Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, Secretary-General.

September

American Academy for Cerebral Palsy, Sheraton-Biltmore Hotel, Providence, R. I., Sept. 25-27. Dr. Raymond R. Rembolt, University Hospitals, Iowa City, Ia., Secretary.

American Association of Obstetricians and Gynecologists, The Homestead, Hot Springs, Va., Sept. 4-6. Dr. E. Stewart Taylor, 4200 E. 9th Ave., Denver 20, Secretary.

American College of Physicians, Mid-West Regional Meeting, Milwaukee, Wis., Sept. 27. Dr. James F. Gleason, 7 S. Oxford Ave., Atlantic City, N. J., General Chairman.

American Fracture Association, Skirvin Hotel, Oklahoma City, Okla., Sept. 29-Oct. 4. Dr. H. W. Wellmerling, 610 Griesheim Bldg., Bloomington, Ill., Secretary.

American Medical Writers' Association, Hotel Morrison, Chicago, Sept. 26-27. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Roentgen Ray Society, Shoreham Hotel, Washington, D. C., Sept. 27-Oct. 3. Dr. C. Allen Good, 200, 1st St. S. W., Rochester, Minn., Secretary.

Colorado State Medical Society, Broadmoor Hotel, Colorado Springs, Sept. 24-27. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver 2, Executive Secretary.

Kansas City Southwest Clinical Society, Municipal Auditorium, Kansas City, Mo., Sept. 22-25. Mr. A. L. Bingham, 3036 Gillham Rd., Kansas City 8, Mo., Executive Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 23-25. Mr. J. P. Sanford, 1169 Eastern Parkway, Louisville 17, Executive Secretary.

Michigan State Medical Society, Sheraton-Cadillac Hotel, Detroit, Sept. 30-Oct. 3. Dr. L. Fernald Foster, 606 Townsend St., P. O. Box 539, Lansing, Mich., Secretary.

Mississippi Valley Medical Society, Morrison Hotel, Chicago, Sept. 24-26. Dr. Harold Swanberg, 510 Main St., Quincy, Ill., Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 11-13. Mr. L. R. Hegland, P. O. Box 1692, Billings, Executive Secretary.

Nevada State Medical Association, Elko, Sept. 17-20. Mr. Nelson B. Neff, P. O. Box 188, Reno, Executive Secretary.

New Hampshire Medical Society, Mt. Washington Hotel, Bretton Woods, Sept. 19-22. Mr. Hamilton S. Putnam, 18 School St., Concord, Executive Secretary.

Northeastern Section, American Urological Association, Equinox House, Manchester, Vt., Sept. 12-13. Dr. F. O. Harbach, 831 James St., Syracuse, N. Y., Secretary.

Oregon State Medical Society, Columbia Athletic Club, Portland, Sept. 3-5. Dr. Max H. Parrott, 1020 S. W. Taylor St., Portland 5, Secretary.

(Continued on page 28)

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LONG						
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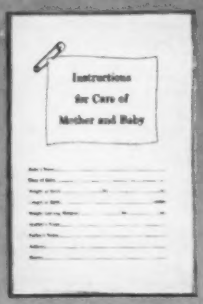

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TEXAS ACADEMY OF GENERAL PRACTICE, San Antonio, Tex., Sept. 22-24. Mr. Donald C. Jackson, 1905 N. Lamar, Austin, Tex., Executive Secretary.

TRI-STATE MEDICAL SOCIETY, Shreveport, La., Sept. 18. Dr. J. C. Sanders, Sanders Clinic, Kings Highway, Shreveport, La., Secretary.

UNITED STATES SECTION, INTERNATIONAL COLLEGE OF SURGEONS, Atlantic City, N. J., Sept. 7-11. Dr. Karl Meyer, 1835 W. Harrison, Chicago, Secretary.

UTAH STATE MEDICAL ASSOCIATION, Hotel Utah, Salt Lake City, Sept. 9-12. Mr. Harold Bowman, 42 S. Fifth East St., Salt Lake City 2, Executive Secretary.

VERMONT STATE MEDICAL SOCIETY, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 20-22. Mr. Getty Page, 128 Merchants Row, Rutland, Vt., Executive Secretary.

WASHINGTON STATE MEDICAL ASSOCIATION, Davenport Hotel, Spokane, Sept. 14-17. Mr. Ralph W. Neill, 1309 7th Ave., Seattle, Executive Secretary.

October

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Palmer House, Chicago, Oct. 12-17. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Palmer House, Chicago, Oct. 20-23. Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Palace Hotel, San Francisco, Oct. 2-4. Dr. John R. Hand, 1216 Southwest Yamhill St., Portland, Ore., Secretary.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Statler Hotel, Boston, Oct. 13-16. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

AMERICAN ASSOCIATION OF PUBLIC HEALTH PHYSICIANS, St. Louis, Oct. 27-31. Dr. Joseph M. Bistowish, P. O. Box 1117, Tallahassee, Fla., Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Drake Hotel, Chicago, Oct. 2-4. Dr. William T. Fitts, Jr., 3400 Spruce St., Philadelphia 4, Secretary.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, Otesaga Hotel, Cooperstown, N. Y., Oct. 9-11. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

AMERICAN COLLEGE OF GASTROENTEROLOGY, Jung Hotel, New Orleans, Oct. 19-25. Mr. Daniel Weiss, 33 W. 60th St., New York 23, Executive Secretary.

AMERICAN COLLEGE OF SURGEONS, Oct. 6-10. Dr. Michael L. Mason, 40 E. Erie St., Chicago, Secretary.

AMERICAN DIETETIC ASSOCIATION, Bellevue-Stratford Hotel, Philadelphia, Oct. 21-24. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

AMERICAN HEART ASSOCIATION, Fairmont Hotel, San Francisco, Oct. 24-28. Mr. John D. Brundage, 44 E. 23d St., New York 10, Secretary.

AMERICAN PUBLIC HEALTH ASSOCIATION, Kiel Auditorium, St. Louis, Oct. 27-31. Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Secretary.

AMERICAN SCHOOL HEALTH ASSOCIATION, St. Louis, Oct. 26-31. Dr. A. O. DeWeese, 515 E. Main St., Kent, Ohio, Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Penn-Sheraton Hotel, Pittsburgh, Oct. 19-24. Dr. J. Earl Remlinger, 802 Ashland Ave., Wilmette, Ill., Secretary.

AMERICAN SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGERY, Drake Hotel, Chicago, Oct. 12-17. Dr. Kenneth L. Pickrell, Duke Univ. Hosp., Durham, N. C., Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Ocean House, Swampscott, Mass., Oct. 13-15. Dr. Dean F. Smiley, 2530 Ridge Ave., Evanston, Ill., Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Statler Hotel, Hartford, Conn., Oct. 22-24. Dr. Royal S. Schaaf, P. O. Box 594, Newark 1, N. J., Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Dallas, Tex., Oct., Miss Rose M. Reynolds, 42d & Dewey Ave., Omaha 5, Secretary.

ASSOCIATION OF STATE & TERRITORIAL HEALTH OFFICERS, Hotel Washington, Washington, D. C., Oct. 22-24. Dr. Mack I. Stanholtz, State Office Bldg., Richmond, Va., Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Hotel Leamington, Minneapolis, Oct. 2-4. Dr. Edwin J. DeCosta, 104 S. Michigan Ave., Chicago 3, Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, Deshler Hilton Hotel, Columbus, O., Oct. 17-18. Dr. Ralph M. Patterson, Ohio State Univ., College of Med., Columbus 10, O., Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Oct. 31-Nov. 1. Dr. Austin S. Weisberger, 2065 Adelbert Rd., Cleveland 6, Secretary.

CLINICAL ORTHOPAEDIC SOCIETY, Brown Palace Hotel, Denver, Oct. 2-4. Dr. Charles H. Franz, 1801 Wealthy St. S. E., Grand Rapids, Mich., Secretary.

CONGRESS OF NEUROLOGICAL SURGEONS, St. Francis Hotel, San Francisco, Oct. 29-Nov. 1. Dr. Richard L. DeSaussure, 899 Madison Ave., Memphis, Tenn., Secretary.

GULF COAST CLINICAL SOCIETY, Pensacola, Fla., Oct. 23-24. Dr. J. J. Baehr Jr., 117 N. Palafox St., Pensacola, Fla., Secretary.

INDIANA STATE MEDICAL ASSOCIATION, Murat Temple, Indianapolis, Oct. 13-15. Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

PENNSYLVANIA, MEDICAL SOCIETY OF THE STATE OF, Bellevue-Stratford, Philadelphia, Oct. 12-17. Mr. Lester H. Perry, 230 State St., Harrisburg, Executive Director.

MEDICAL SOCIETY OF VIRGINIA, Hotel Jefferson, Richmond, Oct. 12-15. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond 20, Executive Secretary.

NATIONAL PROCTOLOGIC ASSOCIATION, Hamilton Hotel, Chicago, Oct., Dr. George E. Mueller, 59 E. Madison St., Chicago 2, Secretary.

OKLAHOMA CITY CLINICAL SOCIETY, Biltmore Hotel, Oklahoma City, Okla., Oct. 27-29. Mrs. Alma O'Donnell, 503 Medical Arts Bldg., Oklahoma City, Okla., Executive Secretary.

PUERTO RICO MEDICAL ASSOCIATION, Santurce, P. R., Nov. 18-22. Mr. J. A. Sanchez, Box 9111, Santurce 29, P. R., Executive Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION, Pioneer Hotel, Tucson, Ariz., Oct. 23-25. Dr. Russel L. Deter, 1501 Arizona St., El Paso, Tex., Secretary.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION, San Francisco, Oct., Dr. A. C. Remington, 9851 Sepulveda Blvd., Los Angeles 45, Secretary.

WESTERN ORTHOPEDIC ASSOCIATION, Multnomah Hotel, Portland, Ore., Oct. 22-25. Dr. Eldon G. Chuinard, 1922 N. W. Johnson, Portland 9, Ore., Secretary.

November

AMERICAN ASSOCIATION OF BLOOD BANKS, Netherlands Plaza Hotel, Cincinnati, Nov. 20-22. Dr. John B. Alsever, 1211 W. Washington, Phoenix, Ariz., Secretary.

AMERICAN DENTAL ASSOCIATION, Memorial Auditorium, Dallas, Tex., Nov. 10-13. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Congress Hotel, Chicago, Nov. 2-8. Dr. Clyde G. Culbertson, Indiana Univ. Med. Center, West Michigan St., Indianapolis, Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Hotel Deauville, Miami Beach, Fla., Nov. 4-7. Dr. R. B. Hill, 3575 St. Gaudens Rd., Miami 33, Fla.

ASSOCIATION OF MILITARY SURGEONS OF THE U. S., Hotel Statler, Washington, D. C., Nov. 17-19. Col. Robert E. Bitner, 1726 Eye St., N. W., Washington 6, D. C., Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Congress Hotel, Chicago, Nov. 1-5. Dr. A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1, Executive Secretary.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF THE, 1718 M St., N. W., Washington, Nov., Mr. Theodore Wiprud, 1718 M St., N. W., Washington 6, Secretary.

GERONTOLOGICAL SOCIETY, Bellevue-Stratford Hotel, Philadelphia, Nov. 6-8. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

INTER-SOCIETY CYTOLOGY COUNCIL, Hotel Statler, New York, Nov. 13-15. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, Cleveland, Nov. 10-13. Dr. Erwin R. Schmidt, Box 1109, Madison 1, Wis., Secretary.

MICHIGAN ACADEMY OF GENERAL PRACTICE, Sheraton-Cadillac Hotel, Detroit, Nov. 12-13. Dr. F. P. Rhoades, 970 Maccabees Bldg., Detroit 2, Convention Manager.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN & ADULTS, Statler Hilton Hotel, Dallas, Tex., Nov. 16-20. Miss Catharine Bauer, 11 S. LaSalle St., Chicago 3, Director of Information.

NEW ENGLAND POSTGRADUATE ASSEMBLY, Statler Hotel, Boston, Nov. 4-6. Mr. Robert S. Boyd, Massachusetts Medical Society, 22 The Fenway, Boston 15, Executive Secretary.

OMAHA MIDWEST CLINICAL SOCIETY, Sheraton-Fontenelle Hotel, Omaha, Nov. 3-6. Dr. Payson Adams, 1031 Medical Arts Bldg., Omaha 2, Secretary.

RADIOLOGICAL SOCIETY OF NORTH AMERICA, Palmer House, Chicago, Nov. 16-21. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

SOUTHERN MEDICAL ASSOCIATION, New Orleans, Nov. 3-6. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Executive Secretary.

UNITED STATES SECTION, INTERNATIONAL COLLEGE OF SURGEONS, MID-ATLANTIC REGIONAL MEETING, The Homestead, Hot Springs, Va., Nov. 17-18. For information address: Dr. Elbryne G. Gill, 711 Jefferson St., S., Roanoke 13, Va.

WESTERN SURGICAL ASSOCIATION, Kahler Hotel, Rochester, Minn., Nov. 20-22. Dr. John T. Reynolds, 612 N. Michigan Ave., Chicago 11, Secretary.

December

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY, Palmer House, Chicago, Dec. 6-11. Dr. R. R. Kierland, Mayo Clinic, Rochester, Minn., Secretary.

AMERICAN MEDICAL ASSOCIATION, CLINICAL MEETING, Hotel Leamington, Minneapolis, Dec. 2-5. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASES, Hotel Roosevelt, New York, Dec. 12-13. Dr. Rollo J. Masselink, 700 W. 168th St., New York 32, Secretary.

SOUTHERN MEDICAL ASSOCIATION, Boca Raton Club & Hotel, Boca Raton, Fla., Dec. 9-11. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Md., Secretary.

AMERICAN

1959

January

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Palmer House, Chicago, Jan. 24-29. Dr. Clinton L. Compere, 720 N. Michigan Ave., Chicago 11, Secretary.

(Continued on page 30)

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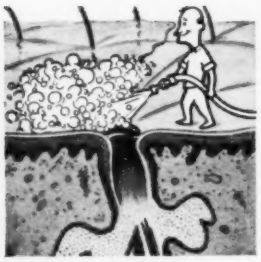

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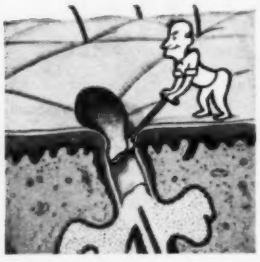

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FOSTEX CREAM for therapeutic washing of skin in the initial phase of acne treatment, when maximum degreasing and peeling are desired.

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Rocky Mountain Traumatic Surgical Association, Aspen, Colo., Jan. 25-29. Dr. Charles B. Bartell, 1600 Orange Ave., Long Beach 13, Calif., Secretary.

February

American Academy of Allergy, Morrison Hotel, Chicago, Feb. 9-11. Dr. Bram Rose, Royal Victoria Hosp., Montreal, Quebec, Secretary.

American Academy of Occupational Medicine, Boston, Feb. 11-13. Dr. L. Blaney, 1608 Walnut St., Philadelphia 3, Secretary.

American College of Radiology, Drake Hotel, Chicago, Feb. 6-7. Mr. William C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Director.

California Medical Association, Sheraton-Palace Hotel, San Francisco, Feb. 22-25. Mr. John Hunton, 450 Sutter St., San Francisco 8, Executive Secretary.

Central Surgical Association, Montreal, Can., Feb. 19-21. Dr. A. D. McLachlin, Victoria Hosp., London, Ontario, Secretary.

Society of University Surgeons, Denver, Colo., Feb. 12-14. Dr. James D. Hardy, Univ. Medical Center, Jackson, Miss., Secretary.

March

American College of Allergists, Fairmont Hotel, San Francisco, Mar. 15-20. Dr. M. Coleman Harris, 450 Sutter St., San Francisco, Secretary.

American Orthopsychiatric Association, Sheraton-Palace Hotel, San Francisco, Mar. 30-Apr. 1. Dr. Marion F. Langer, 1790 Broadway, New York 19, Executive Secretary.

American Otorhinologic Society for Plastic Surgery, Waldorf-Astoria, New York, Mar., Dr. Joseph G. Gilbert, 75 Barberry Lane, Roslyn Heights, N. Y., Secretary.

National Multiple Sclerosis Society, New York, Mar. 9. Mr. Donald Vail, 257, 4th Ave., New York 10, Secretary.

Southwestern Surgical Congress, New Brown Palace Hotel, Denver, Mar. 30-Apr. 1. Dr. C. M. O'Leary, 1213 Medical Arts Bldg., Oklahoma City, Okla., Secretary.

April

Aero Medical Association, Hotel Statler, Los Angeles, Apr. 27-29. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

American Academy of General Practice, San Francisco, Apr. 6-9. Mr. Mac F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Mo., Executive Secretary.

American Association of Anatomists, Seattle, Apr. 1-3. Dr. B. Flexner, Univ. of Pa. Med. School, Philadelphia 4, Secretary.

American College of Obstetricians & Gynecologists, Traymore Hotel, Atlantic City, N. J., Apr. 6-8. Dr. John C. Ullery, 15 S. Clark St., Chicago 3, Secretary.

American College of Physicians, Conrad Hilton Hotel, Chicago, Apr. 20-24. Mr. E. R. Loveland, 4200 Pine St., Phildelphia 4, Executive Secretary.

American Physiological Society, Atlantic City, N. J., Apr. 12-16. Dr. Ray G. Daggs, 9650 Wisconsin Ave., Washington, D. C., Executive Secretary.

American Radium Society, The Homestead, Hot Springs, Va., Apr. 6-8. Dr. Robert L. Brown, 321 Robin Hood Dr., N.E., Atlanta, Ga., Secretary.

American Urological Association, Chalfonte-Haddon Hall, Atlantic City, N. J., Apr. 20-23. Dr. Samuel L. Raines, 188 S. Bellevue Blvd., Memphis, Tenn., Secretary.

Industrial Medical Association, Sherman Hotel, Chicago, Apr. 26-29. Dr. Leonard Arling, 3101 University Ave., S.E., Minneapolis 14, Secretary.

Iowa State Medical Society, Savery Hotel, Des Moines, Apr. 19-22. Mr. Donald L. Taylor, 529 36th St., Des Moines, Executive Secretary.

Tennessee State Medical Association, Peabody Hotel, Memphis, Apr. 12-15. Mr. Jack E. Ballentine, 112 Louise Ave., Nashville 5, Executive Secretary.

Texas Medical Association, San Antonio Apr. 18-21. Mr. C. Lincoln Williston, 1801 N. Lamar Blvd., Austin, Executive Secretary.

May

American Psychosomatic Society, Chalfonte-Haddon Hall, Atlantic City, N. J., May 2-3. Dr. Morton F. Reiser, 265 Nassau Rd., Roosevelt, N. Y., Secretary.

Society of American Bacteriologists, Sheraton Jefferson Hotel, St. Louis, May 10-15. Dr. E. M. Foster, University of Wisconsin, Madison 6, Wis., Secretary.

INTERNATIONAL AND FOREIGN

June

Canadian Medical Association, Halifax, N. S., Canada, June 15-19. Dr. A. D. Kelly, 150 St. George St., Toronto 5, Ont., General Secretary.

Canadian Physiological Society, Edmonton, Alberta, June 12-14. Dr. R. B. Bromily, P. O. Box 121, Postal Station "K," Toronto, Ont., Secretary.

Canadian Tuberculosis Association, Quebec City, Quebec, June 9-12. Dr. G. J. Wherrett, 265 Elgin St., Ottawa, Canada, Executive Secretary.

Congress of International Federation of Gynecology and Obstetrics, Montreal, Can., June 22-28. For information address: Prof. L. Gerin-Lajoie, 1414 rue Drummond, Suite 313, Montreal, Canada.

International Association for Child Psychiatry, Lisbon, Portugal, June 15-20. Mrs. Irvine, Tavistock Clinic 2, Beaumont St., London, W. 1, England, Secretary-General.

International Congress of Urology, Stockholm, Sweden, June 25-July 1. Dr. G. Giertz, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

(Continued on page 32)

SOCIETY	PRESIDENT	SECRETARY	MEETING
American			
Public Health Association	Mr. Roy Morton, Oak Ridge, Tenn.	Berwyn F. Mattison, 1790 Broadway, New York 19	St. Louis, Mo., Oct. 27-31
Radium Society	Milford Schulz, Boston 14	Robert L. Brown, 321 Robin Hood Dr., N.E., Atlanta, Ga.	Hot Springs, Va., Apr. 6-8
Rheumatism Assn.	L. Maxwell Lockie, Buffalo 2, N. Y.	Edward F. Hartung, 580 Park Ave., New York 21	San Francisco, June 20-21
Roentgen Ray Society	Wendall G. Scott, Clayton 5, Mo.	C. Allen Good, 200 1st St., S.W., Rochester, Minn.	Washington, D. C., Sept. 27-Oct. 3
School Health Assn.	Ruth Weaver, Philadelphia	A. O. DeWeese, 515 E. Main St., Kent, Ohio	St. Louis, Mo., Oct. 26-31
Society for Clinical Investigation	Richard V. Ebert, Little Rock, Ark.	S. J. Farber, 550 1st Ave., New York 16	
Society for Experimental Pathology	Emory Warner, Iowa City, Ia.	Cyrus C. Erickson, 858 Madison Ave., Memphis 3, Tenn.	
Society for Pharm. & Ex. Ther.	Otto Krayer, Boston	Harold Hodge, Univ. of Rochester, Rochester 20, N. Y.	
Society for the Study of Sterility	Sheldon Payne, Los Angeles 25	H. H. Thomas, 920 S. 19th St., Birmingham, Ala.	
Society of Anesthesiologists	Ralph S. Sappenfield, Miami 37, Fla.	J. E. Remlinger, Jr., 188 W. Randolph St., Chicago 1	Pittsburgh, Pa., Oct. 19-24
Society of Biological Chemists	John T. Edsall, Cambridge, Mass.	Philip Handler, Duke University, Durham, N. C.	
Society of Clinical Pathologists	Harry P. Smith, New York 32	C. G. Culbertson, 1040 W. Michigan St., Indianapolis 6	Chicago, Nov. 2-8
Society of Maxillofacial Surgeons	Samuel G. Balkin, Minneapolis	Orion H. Stuteville, 700 N. Michigan Ave., Chicago 11	
Society of Plastic & Reconst. Surg.	S. Milton Dupertuis, Pittsburgh 13	Kenneth L. Pickrell, Duke Univ. Hosp., Durham, N. C.	
Society of Tropical Medicine & Hygiene	Donald L. Augustine, Boston 15	R. B. Hill, 3575 St. Gaudens Rd., Miami 33, Fla.	Miami Beach, Fla., Nov. 4-7
Surgical Assn.	John H. Mulholland, New York 16	R. Kennedy Gilchrist, 59 E. Madison St., Chicago 3	
Therapeutic Society	Arthur C. De Graff, New York	O. B. Hunter, Jr., 315 19th St., N.W., Washington, D. C.	San Francisco, June 19-22
Trudeau Society	Theodore L. Badger, Boston 16	E. P. K. Fenger, 1790 Broadway, New York 19	
Urological Assn.	Adolph Kutzmann, Los Angeles 57	Samuel L. Raines, 188 S. Bellevue Blvd., Memphis, Tenn.	Atlantic City, N. J., Apr. 20-23
Venereal Disease Assn.	Sidney Olansky, Durham, N. C.	S. R. Taggart, 300 Indiana Ave., N.W., Wash. 1, D. C.	
Veterinary Medical Assn.	W. W. Armistead, East Lansing, Mich.	J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5	Philadelphia, Aug. 18-21
Assn. for Research in Nervous & Ment. Dis.	Lee Eaton, Rochester, Minn.	Rollo J. Masselink, 700 W. 168th St., New York 32	New York, Dec. 12-13
Assn. for Research in Ophthalmology	Michael J. Hogan, San Francisco	Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6	San Francisco, June 23-27
Assn. of American Medical Colleges	Lowell T. Coggeshall, Chicago	Dean F. Smiley, 2530 Ridge Ave., Evanston, Ill.	Swampscott, Mass., Oct. 13-15
Assn. of American Physicians	William S. Tillett, New York	P. R. Peeson, Yale U. Sch. of Med., New Haven 11, Conn.	
Assn. of Life Ins. Med. Dir. of America	Norman J. Barker, Hartford 15, Conn.	Royal S. Schaaf, P. O. Box 594, Newark 1, N. J.	Hartford, Conn., Oct. 22-24
Assn. of Medical Illustrators	Lewis A. Waters, Dallas 19, Tex.	Miss Rose M. Reynolds, 42nd and Dewey Ave., Omaha 5	Oct. '58
Assn. of Military Surgeons of U. S.	Charles R. Mueller, Washington 6, D. C.	R. E. Bitner, 1726 21 St., N.W., Washington 6, D. C.	Washington, D. C., Nov. 17-19
Assn. of Public Health Phys.	Sanford P. Lehman, Seattle	Joseph M. Bistowish, P. O. Box 1117, Tallahassee, Fla.	St. Louis, Mo., Oct. 27-31
Assn. of State & Territorial Health Officers	Herman E. Hilleboe, Albany, N. Y.	M. F. Shanholtz, State Office Bldg., Richmond, Va.	Washington, D. C., Oct. 22-24
Biological Photographic Assn.	Mr. Leo C. Massopust, Milwaukee	Miss J. Waters, Box 1668, Grand Central P. O., N. Y. 17	Washington, D. C., Aug. 19-22
Central Assn. of Ob. & Gyn.	Herbert E. Schmitz, Chicago 2	Edwin J. DeCosta, 104 S. Michigan Ave., Chicago 3	Minneapolis, Oct. 2-4
Central Neuropsychiatric Assn.	Edward G. Billings, Denver 6	R. M. Patterson, Ohio S. Univ. Col. of Med., Columbus 10, Ohio	Columbus, O., Oct. 17-18
Central Society for Clinical Research	Thorton Scott, Lexington, Ky.	Austin S. Weisburger, 2065 Adelbert Rd., Cleveland 6	Chicago, Oct. 31-Nov. 1
Central Surgical Assn.	William A. Altemeier, Cincinnati	A. D. McLachlin, Victoria Hosp., London, Ont., Canada	Montreal, Can., Feb. 19-21
Clinical Orthopaedic Society	Marcus J. Stewart, Memphis 3, Tenn.	Charles H. Frantz, 1810 Wealthy St. S.E., Grand Rapids, Mich.	Denver, Oct. 2-4
College of American Pathologists	Charles P. Larson, Tacoma, Wash.	A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1	Chicago, Nov. 1-5
Gerontological Society	R. J. Havighur, Chicago 37	Nathan W. Shock, Baltimore City Hospitals, Baltimore 24	
Industrial Medical Association	H. W. Lawrence, Cincinnati 17	Leonard Arling, 3101 Univ. Ave., S. E., Minneapolis 14	Chicago, Apr. 26-29
Interstate Postgrad. Med. Assn. of N. A.	Tom D. Spies, Birmingham, Ala.	Erwin R. Schmidt, Box 1109, Madison 1, Wis.	Cleveland, Nov. 10-13
Medical Library Assn.	Thomas E. Keys, Rochester, Minn.	Mrs. H. T. Perkins, 533 Cedar St., New Haven 11, Conn.	Rochester, Minn., June 2-6
National Medical Assn.	A. M. Townsend, St. Louis 6, Mo.	John T. Givens, 1108 Church St., Norfolk 10, Va.	Milwaukee, Aug. 11-14
National Multiple Sclerosis Society	Jr. Ralph C. Glock, New York	Mr. Donald Vail, 257 Fourth Ave., New York 10	New York, Mar. 9
National Proctologic Assn.	Peggy Cornet, Chicago Heights, Ill.	George E. Mueller, 59 E. Madison St., Chicago 2	Chicago, Oct. '58
National Tuberculosis Assn.	William M. Morgan, New York 19	Mrs. Wallace B. White, 1790 Broadway, New York 19	
Neurosurgical Society of America	Lyle A. French, Minneapolis	Raymond K. Thompson, 260 Crittenden Blvd., Rochester 20, N. Y.	
Radiological Society of North America	Leo G. Rigler, Los Angeles 29	D. S. Childs, 713 E. Genesee St., Syracuse 2, N. Y.	Chicago, Nov. 16-21
Society for Investigative Dermatology	Walter C. Lobitz Jr., Hanover, N. H.	Herman Beerman, 255 S. 17th St., Philadelphia 3	San Francisco, June 21-23
Society for Pediatric Research	Edward Pratt, Dallas 19, Tex.	Sidney S. Gellis, 818 Harrison Ave., Boston 18	
Society for Vascular Surgery	Arthur H. Blakemore, New York 32	Henry Swan, 4200 East 9th Ave., Denver 20	
Society of American Bacteriologists	Harry Eagle, Bethesda, Md.	E. M. Foster, Univ. of Wisconsin, Madison 6, Wis.	St. Louis, May 10-15
Society of Biological Psychiatry	Jules Masserman, Chicago	George N. Thompson, 2010 Wilshire Blvd., Los Angeles 57	
Society of Clinical Surgery	James Priestly, Rochester, Minn.	F. F. Albritten, Jr., Univ. of Kans., Kansas City, Kan.	
Society of Neurological Surgeons	Edgar Kahn, Ann Arbor, Mich.	Brunson S. Ray, 525 E. 68th St., New York 21	
Society of University Surgeons	C. Rollins Hanlon, St. Louis 4, Mo.	James Hardy, University Medical Center, Jackson, Miss.	Denver, Colo., Feb. 13-14
Southeastern Surgical Congress	Howard Mahorner, New Orleans 13, La.	B. T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga.	
Southern Medical Assn.	W. Kelly West, Oklahoma City, Okla.	Mr. V. O. Foster, Empire Bldg., Birmingham 3, Ala.	New Orleans, La., Nov. 3-6
Southern Surgical Assn.	James D. Rives, New Orleans 12, La.	George G. Finney, 2947 St. Paul St., Baltimore 18	Boca Raton, Fla., Dec. 9-11
Southwestern Medical Assn.	Louis G. Jekel, Phoenix, Ariz.	Russell L. Deter, 1501 Arizona St., El Paso, Tex.	Tucson, Ariz., Oct. 23-25
Southwestern Surgical Congress	Lewis M. Overton, Albuquerque, N. M.	C. M. O'Leary, 1213 Med. Arts Bldg., Oklahoma City	Denver, Mar. 30-Apr. 1
Student American Medical Assn.	Mr. Robert Rakel, Cincinnati 19	Mr. Russell F. Staudacher, 430 N. Michigan, Chicago 11	
The Endocrine Society	Leo T. Samuels, Salt Lake City	H. H. Turner, 1200 N. Walker St., Oklahoma City	San Francisco, June 19-21
U. S. Section, Internat'l Coll. of Surgeons	Curtice Rosser, Dallas, Texas	Karl Meyer, 1516 Lake Shore Dr., Chicago	
Western Industrial Medical Assn.	David D. Holaday, San Francisco	A. C. Remington, 9851 Sepulveda Blvd., Los Angeles 45	San Francisco, '58
Western Orthopedic Assn.	Joe B. Davis, Portland, Ore.	Eldon G. Chuinard, 1922 N. W. Johnson, Portland 9, Ore.	Portland, Ore., Oct. '58
Western Society of Electro-Encephalography	Donald B. Lindsley, Los Angeles 24	Kenneth A. Blinn, 4120 Atlantic Ave., Long Beach, Calif.	
Western Surgical Assn.	James B. Brown, St. Louis 8	John T. Reynolds, 612 N. Michigan Blvd., Chicago 11	Rochester, Minn., Nov. 20-22
Woman's Auxiliary to the Am. Med. Assn.	Mrs. Paul C. Craig, Wyomissing, Pa.	Miss Margaret Wolfe, 535 N. Dearborn St., Chicago 10	San Francisco, June 23-27
World Medical Assn.	A. R. Onat, Sisli, Istanbul, Turkey	Louis H. Bauer, 10 Columbus Circle, New York 19	Copenhagen, Denmark, Aug. 15-20

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INTERNATIONAL FERTILITY ASSOCIATION, Windsor Hotel, Montreal, Que., June 20-22. For information address: Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield 8, Mass., U. S. A.

INTERNATIONAL SYMPOSIUM ON VENEREAL DISEASES AND THE TREPONEMATOSES, Brussels, Belgium, June 5-8. For information address: Institut Alfred Fournier, 25, boulevard St. Jacques, Paris 14e, France.

July

AMERICAN COLLEGE OF SURGEONS, REGIONAL MEETING, Stockholm, Sweden, July 2-7. Dr. Michael L. Mason, 40 E. Erie St., Chicago, Ill., U. S. A., Chairman.

BRITISH MEDICAL ASSOCIATION, Birmingham, England, July 10-18. For information address: The Secretary, British Medical Association, Tavistock Square, London, W. C. 1, England.

BRITISH TUBERCULOSIS ASSOCIATION, Royal Festival Hall, London, England, July 1-4. For information address: Secretary-General, National Association for the Prevention of Tuberculosis, Tavistock Square, London W. C. 1, England.

CONGRESS OF MEDICAL WOMAN'S INTERNATIONAL ASSOCIATION, Bedford College, Regents Park, London, England, July 15-21. Dr. Janet Aitken. 30 a Acacia Rd., London, N. W. 8, England, Secretary-General.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Dusseldorf, Germany, July 11-13. For information address: Congress Secretariat, Medical Akademie, Moorenstrasse, 5, Dusseldorf, Germany.

INTERNATIONAL CANCER CONGRESS, Royal Festival Hall, London, England, July 6-12. For information address: Secretary-General, 7th International Cancer Congress, 45 Lincoln's Inn Fields, London, W. C. 2, England.

INTERNATIONAL PROFESSIONAL ASSOCIATION OF GYNECOLOGISTS AND OBSTETRICIANS, Brussels, Belgium, July 18-19. Dr. Geeraert, 211, Avenue Louise, Brussels, Belgium, General Secretary.

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES, London, England, July 16-23. For information address: Chairman, Division of Biology and Agriculture, National Research Council, 2101 Constitution Ave., N. W., Washington 25, D. C., U. S. A.

IRISH MEDICAL ASSOCIATION, Galway, Ireland, July. For information address: Irish Medical Association, 10 Fitzwilliam Place, Dublin, Ireland.

August

INTERNATIONAL COMMITTEE OF MILITARY MEDICINE & PHARMACY, Brussels, Belgium, Aug. 4-7. For information address: Hospital Militaire, 79, rue Saint Laurent, Liege, Belgium.

INTERNATIONAL CONGRESS OF GENETICS, Montreal, Que., Aug. 20-27. Mr. J. W. Boyes, Department of Genetics, McGill Univ., Montreal 2, Que., Chairman.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Stockholm, Sweden, Aug. 4-9. Dr. C. G. Heden, Bakteriologiska Institutionen, Karolinska Institute, Stockholm, Sweden, Secretary General.

PAN-AMERICAN CONGRESS OF OTORHINOLORYNGOLOGY AND BRONCHOESOPHAGOLOGY, Rio de Janeiro, Brazil, Aug. 12. For information write: Dr. Chevalier L. Jackson, 3401 N. Broad St., Philadelphia 40, Pa., U. S. A.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Copenhagen, Denmark, Aug. 11-16. For information write: Annemarie Gjetting, Upsalagade 7, 5. S., Copenhagen, Denmark.

WORLD FEDERATION FOR MENTAL HEALTH, Vienna, Austria, Aug. 24-29. Miss E. M. Thornton, 19 Manchester St., London, W. 1, England, Secretary-General.

WORLD MEDICAL ASSOCIATION, Copenhagen, Denmark, Aug. 15-20. Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, Secretary-General.

September

COLLEGIUM INTERNATIONAL NEURO-PSYCHOPHARMACOLOGICUM, Rome, Italy, Sept. 9-12. For information address: Dr. Herman C. B. Denber, Secretary, Manhattan State Hosp., Ward's Island 35, New York, N. Y., U. S. A.

EUROPEAN CONGRESS OF ALLERGY, London, England, Sept. 2-4. For information address: British Association of Allergists, Wright-Fleming Institute, St. Mary's Hospital, London, W. 2, England.

INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, Brussels, Belgium, Sept. 8-15. Dr. J. P. Mailliart, 47 rue de Bellechasse, Paris 7e, France, Secretary-General.

INTERNATIONAL CONGRESS OF ANGIOLOGY AND HISTOPATHOLOGY, Venice, Italy, Sept. 25-28. Dr. L. Gerson, 4 rue Pasquier, Paris 8e, France, Secretary-General.

INTERNATIONAL CONGRESS OF BIOCHEMISTRY, Vienna, Austria, Sept. 1-6. For information address: Dr. O. Hoffmann-Ostenhof, Währingerstrasse, 42, Vienna IX, Austria.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Tokyo, Japan, Sept. 7-11. For information address: Prof. Andrew L. Banyai, Council on International Affairs, American College of Chest Physicians, 112 E. Chestnut St., Chicago, Ill., U. S. A.

INTERNATIONAL CONGRESS ON THE HISTORY OF MEDICINE, Montpellier, France, Sept. 22-23. For information address: Dr. F. A. Sondervorst, 124 Avenue des Allies, Louvain, Belgium.

INTERNATIONAL CONGRESS OF HYDATID DISEASES, Beirut, Lebanon, Sept. 12-15. For information address: Dr. Elias Sader, rue Ibrahim Ahdab, Beirut, Lebanon.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, Brussels, Belgium, Sept. 8-12. Prof. Jules Francois, 15 Place de Smet de Naeyer, Ghent, Belgium, Secretary-General.

INTERNATIONAL CONGRESS OF PSYCHOTHERAPY, Barcelona, Spain, Sept. 28-Oct. 2. For information address: Dr. Mariano de la Cruz, Clinica Psiquiatrica Universitaria, Faculty of Medicine, Barcelona, Spain.

INTERNATIONAL CONGRESS OF TROPICAL MEDICINE AND MALARIA, Lisbon, Portugal, Sept. 5-13. Prof. Manuel R. Pinto, Instituto de Medicina Tropical, Lisbon, Portugal, Secretary-General.

INTERNATIONAL SOCIETY OF BRONCHOESOPHAGOLOGY, Kyoto, Japan, Sept. 12-15. Dr. Chevalier L. Jackson, 3401 N. Broad St., Philadelphia 40, Pa., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF CARDIOLOGY, Brussels, Belgium, Sept. 14-21. Dr. F. van Dooren, 80 rue Mercelis, Brussels, Belgium, Secretary-General.

INTERNATIONAL SOCIETY OF HEMATOLOGY, Rome, Italy, Sept. 7-13. Dr. Sol Haberman, 3500 Gaston Ave., Dallas, Tex., U. S. A., Secretary-General.

INTERNATIONAL VETERINARY CONGRESS, Brussels, Belgium, Sept. 6-7. Dr. Jac Jensen, Beltstraat 168, Utrecht, Netherlands, General Secretary.

October

INTERNATIONAL CONGRESS OF ALLERGOLOGY, Paris, France, Oct. 19-26. Dr. Samuel M. Feinberg, 303 E. Chicago Ave., Chicago 11, Ill., U. S. A., President.

INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY, Munich, Germany, Oct. For information address: Dr. Louis Grollet, 7, rue Gustave Nadaud, Paris 16, France.

INTERNATIONAL CONGRESS OF MEDICAL HYDROLOGY, Madrid, Spain, Oct. 22-30. For information address: Dr. Francon, 55, rue des Mathurins, Paris 8, France.

INTERNATIONAL SOCIETY ON AUDIOLOGY, Padua, Italy, Oct. 2-5. Prof. Arslan, Clinique O. R. L., Universitaire, Padua, Italy.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Lima, Peru, Oct. Dr. Baltazar Caravedo, Avenida del Golf 1040, San Isidro, Lima, Peru, Secretary-General.

November

INTER-AMERICAN CONGRESS OF RADIOLOGY, Lima, Peru, Nov. 2-8. Dr. Jorge de la Flor, Hospital Arzobispo, Loayza, Lima, Peru, Secretary.

December

INTERNATIONAL LEPROSY CONGRESS, New Delhi, India, Dec. 8-14. Dr. Dharmendra, Leprosy Research Dept., School of Tropical Med., Calcutta 12, India, Secretary.

1959

April

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Miami Beach, Fla., U. S. A., Apr. 20-23. Dr. A. William Friend, East 107 & Park Lane, Cleveland 6, Ohio, U. S. A., Executive Secretary.

May

CONFERENCE ON INTERNATIONAL UNION FOR HEALTH EDUCATION OF THE PUBLIC, Brussels, Belgium, May. Mr. M. Lucien Viborel, 92, rue St. Denis, Paris 1, France, Secretary-General.

June

INTERNATIONAL FERTILITY ASSOCIATION, Amsterdam, Netherlands, June 29-July 4. Dr. Carlos Nouel, Villa Olimpia, Av. Buenos Aires, Los Caobos, Caracas, Venezuela, Secretary-General.

July

CANADIAN MEDICAL ASSOCIATION, Edinburgh, Scotland, July 16-24. Dr. A. D. Kelly, 150 St. George St., Toronto 5, Ont., General Secretary.

INTERNATIONAL CONGRESS OF PEDIATRICS, Montreal, Que., July 19-25. For information address: Dr. R. L. Denton, 2300 Tupper St., Montreal 25, Que.

INTERNATIONAL CONGRESS OF PLASTIC SURGERY, London, England, July 13-17. Mr. David Matthews, 152 Harley St., London, W. 1, England, Secretary-General.

INTERNATIONAL CONGRESS OF RADIOLOGY, Munich, Germany, July 23-30. Prof. Hans v. Braunbehrens, Frankfurt am Main, Forsthausstrasse 76, Germany, General Secretary.

August

INTERNATIONAL ASSOCIATION OF LIMNOLOGY, Vienna & Salzburg, Austria, Aug. 20-Sept. 8. For information address: Secretary, Biologische Station, Lunz am See, Austria.

INTERNATIONAL CONGRESS FOR SPEECH AND VOICE THERAPY, London, England, Aug. 17-22. Miss M. Carter, 46 Cannonbury Square, London, N. 1, England, Secretary.

WORLD CONFERENCE ON MEDICAL EDUCATION, Palmer House, Chicago, Ill., U. S. A., Aug. 30-Sept. 4. For information address: Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, N. Y., U. S. A.

September

CONGRESS OF INTERNATIONAL UNION OF RAILWAY MEDICAL SERVICES, Lucerne, Switzerland, Sept 21-24. Dr. J. Ortega, 13, rue de Chateau-London, Paris 10, France, Secretary-General.

INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Istanbul, Turkey, Sept. 18-21. For information write: Prof. Hami Kocas, Medical School, Ankara, Turkey.

INTERNATIONAL TUBERCULOSIS CONFERENCE, Istanbul, Turkey, Sept. 11-18. Dr. T. I. Gokce, Selime Hatun, Mezarlik Sokak, Taksim, Istanbul, Turkey, Secretary-General.

INTERNATIONAL UNION OF THE MEDICAL PRESS, Cologne, Germany, Sept. 21-24. Dr. Stockhausen, Secretary of Bundesaerztekammer, Cologne, Germany.

(Continued on page 34)

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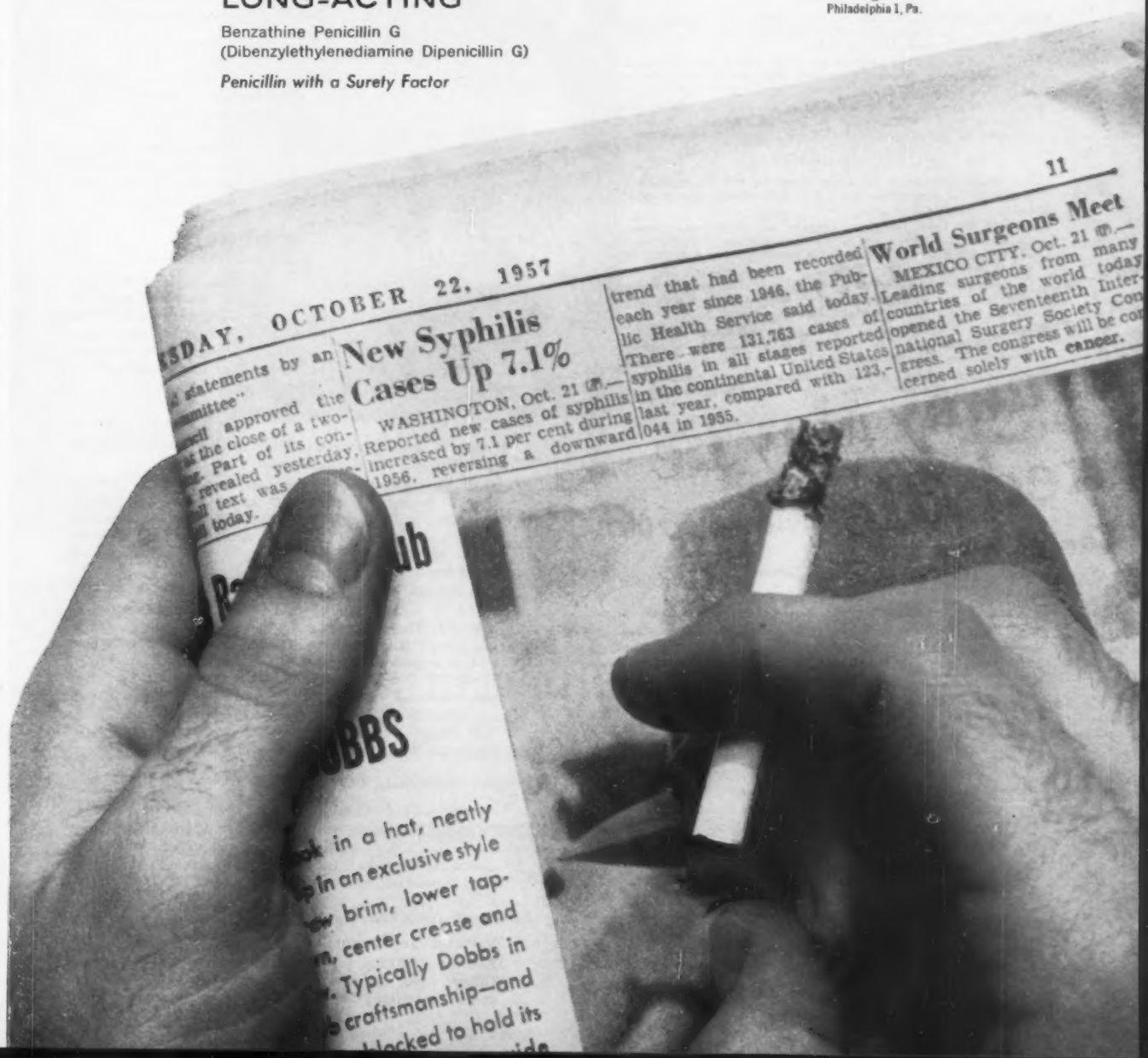


World Congress for Physical Therapy, Paris, France, Sept. 6-12. For information write: Miss M. J. Neilson, Tavistock House, Tavistock Square, London, W. C. 1, England.

1960

January

Pan American Congress of Ophthalmology, Caracas, Venezuela, Jan. 31-Feb. 7. For information address: Dr. Moacyr, E. Alvaro, 1151 Consolacao, Sao Paulo, Brazil.

June

Canadian Medical Association, Banff, Alberta, June 13-17. Dr. A. D. Kelly, 150 St. George St., Toronto 5, Ont., General Secretary.

International Congress of Clinical Pathology, Madrid, Spain, June 13-17. Dr. J. Aparicio, Sandoval 7, Madrid, Spain, Secretary-General.

International Congress of Physio-Pathology of Animal Reproduction and Artificial Insemination, Amsterdam, Netherlands, June 13-17. Dr. J. Edwards, Milk Marketing Board, Thames, Surrey, England, Secretary.

July

International Congress on Goiter, London, England, July 6-8. For information write: Dr. John C. McClintock, 149½ Washington Ave., Albany, N. Y., U. S. A.

August

International Congress of Physical Medicine, Washington, D. C., U. S. A., Aug. 21-26. For information write: Dr. W. J. Zeiter, 2020 E. 93d St., Cleveland, Ohio, U. S. A.

International Society of Hematology, Tokyo, Japan, Aug. 25. For information write: Dr. Sol Haberman, 3500 Gaston Ave., Dallas, Tex., U. S. A.

World Congress of the International Society for the Welfare of Cripples, New York, N. Y., U. S. A., Aug. 29-Sept. 2. Mr. Donald V. Wilson, 701 First Ave., New York 17, N. Y., U. S. A., Secretary-General.

September

Congress of International Society for Cell Biology, Paris, France, Sept. 7-9. For information write: Prof. Chevremont, 20, rue de Pitteurs, Liege, Belgium.

Congress of International Society of Orthopedic Surgery & Traumatology, New York, N. Y., U. S. A., Sept. 7-9. For information address: International Society of Orthopedic Surgery & Traumatology, 34 rue Montoyer, Brussels, Belgium.

International Congress of Criminology, The Hague, Netherlands, Sept. 7-9. For information address: Societe Internationale de Criminologie, 28 avenue de Friedland, Paris 8e, France.

International Congress of Nutrition, Washington, D. C., U. S. A., Sept. 1-7. Dr. Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D. C., U. S. A., General Secretary.

International Society of Geographical Pathology, London, England, Sept. 7-9. Prof. Fred C. Roulet, 174 Albanrheinweg, Basle, Switzerland, Secretary-General.

World Congress of Anesthesiologists, Toronton, Ont., Sept. 4-10. For information write: Dr. R. A. Gordon, 516 Medical Arts Bldg., Toronto 5, Ont.

MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles reported.*

MAGAZINES

Coronet, June, 1958

"The Truth About One Million Abortions a Year," by Lester David

Based on a report resulting from a three-day conference sponsored by the Planned Parenthood Federation of America, this article reports that the practice of abortion is rampant in this country today. The conference's statistics committee reported that the frequency of abortion in the United States could range from between 200,000 and 1,200,000 a year, depending on how the figures are projected in the surveys which are available. Various participants set the total between 500,000 and 1,000,000. The vast majority of these, according to the report, were illegal. A conference committee, in dealing with the question of what could be done to cope with the enormous problem, made these recommendations: Consultation centers should be set up for women who seek abortions; contraceptive information should be made freely available to everyone who wants it; emphasis on sex education, which should be started early, should be realistic and continuous, and should encourage higher standards of sexual conduct and a greater sense of responsibility toward pregnancy; and finally, they suggest an overhaul of the existing laws concerning abortions.

"Are We Executing Sick People?" by Terry Morris

The author suggests that some soul-searching is in order with regard to the problem of legal insanity. He says that liberalizing and updating our legal definitions of insanity and criminal responsibility are essential first steps in bridging the 100-year gap between the processes of law and the insights of modern psychiatry.

"The New High-Energy Dried Fruit Diet," by Florence Brobeck

This diet offers a "lost weight week-end" in which a person may lose as many as 5 lb. in a three-day period. Based primarily on dried fruits, the author claims this diet eliminates one of the major discomforts of most slimming diets—the gradual loss of energy.

"Medicine's Exasperating Faker," by Norman Carlisle

Based on reports which have appeared in The Journal and other medical journals, this story is an account of the exploits of "Leo L.," a 260-lb. hoaxer, who has fooled doctors and hospitals all over the country with his amazing ability to simulate the signs and symptoms of various serious disease conditions. The author terms the bizarre mental quirk, which leads him to fake his way into hospital after hospital, "Munchausen's Syndrome."

Life, May 19, 1958

"Fourth Face of Eve," by Loudon S. Wainwright

This article provides a sequel to the story of multiple personality, "The Three Faces of Eve," which appeared in book form and was the basis for a popular movie of the same name. This article is based in part on a forthcoming book, "The Final Face of Eve," by Evelyn Lancaster and James Poling. The author interviewed the female patient and the psychiatrists who treated her.

Look, June 10, 1958

"Hypnosis," and "The Growing Role of Hypnosis," by Roland H. Berg

Although discredited in the past, hypnotism is gaining respect through achievements that cannot be denied, according to the author. He says that hypnosis is neither trickery nor magic—it is a science of human behavior based on well-established principles of psychology and physiology.

The second article says that, within a few weeks, the A. M. A. will decide whether or not it should "endorse" hypnosis. The Council on Mental Health of the A. M. A. has been studying the subject for more than a year now and is expected to report its findings to the A. M. A. House of Delegates in June, 1958. As the article points out, the exact wording of the report is confidential, but, according to the article, "the betting is that the A. M. A. will accept the council's report," which is expected to recognize that hypnosis has its place in medicine.

Reader's Digest, June, 1958

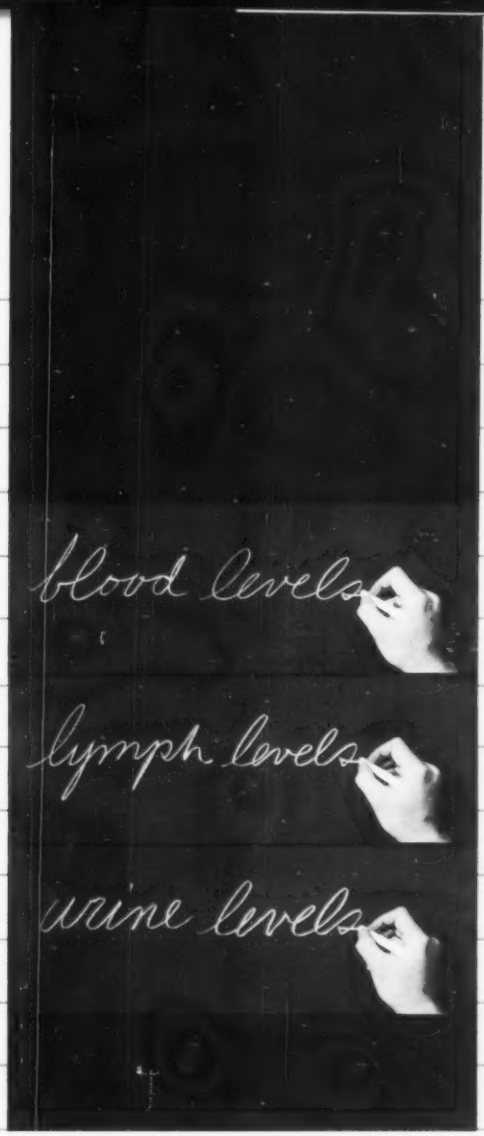
"Glaucoma: the Sinister Halo," by James Robbins Miller

Condensed from the original *Harper's Magazine* article, is the author's story of his personal experiences with glaucoma. He says that, treated soon enough, this dangerous disease need not lead to blindness.

Saturday Evening Post, May 24, 1958

"He Probes the Human Soul," by Ernest O. Hauser

According to this article, at 83 years of age, Dr. Carl Gustav Jung, one of the most remarkable of living men, continues to bare the deep mysteries of the human mind.



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For dosage and supply refer to PDR, page 759.

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1. Feo, L. G., et al.: J. Urol. 75:711 (April) 1956.

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Investigator

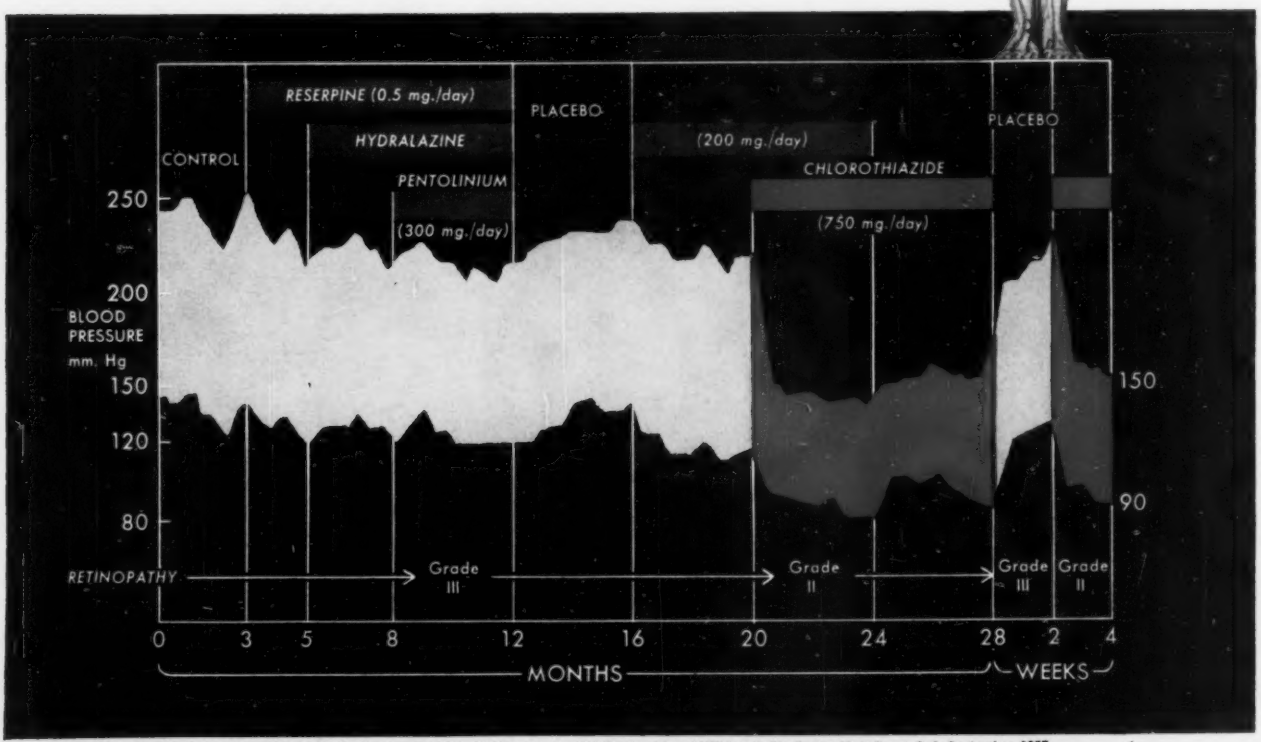
after investigator reports

Wilkins, R. W.: New England J. Med. **257**:1026, Nov. 21, 1957.

"Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." ". . . it is not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). . . ."

Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. **166**:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. **8**: 1, September, 1957.

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The physiologic depletion accompanying acute infectious and inflammatory conditions of the bowel makes replacement therapy the key to nutritional rehabilitation.

In addition to the loss of important electrolytes, such as potassium and sodium, large amounts of protein are lost in the fluid, blood and exudate from the bowel. In the acute state of such affections, utilization of what protein can be ingested is further affected by increased protein catabolism and by impairment of certain hepatic functions.

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The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

Dosage and Supplied: Begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated this may be increased by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100.

CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

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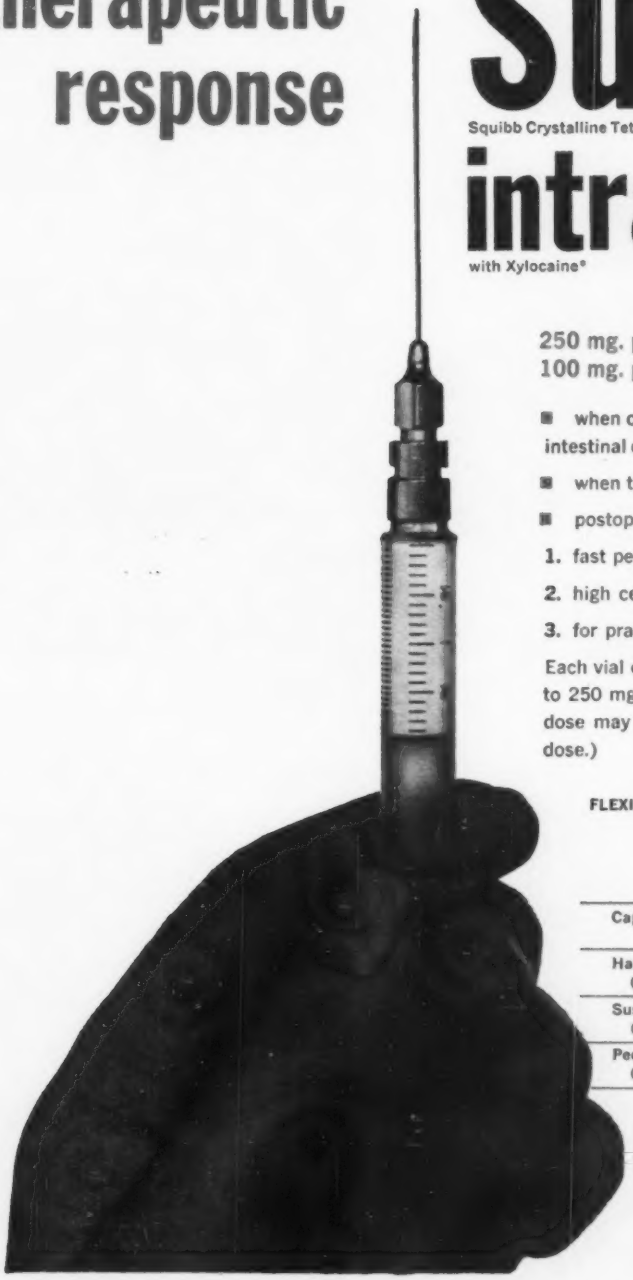

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3. for practical purposes, Sumycin is sodium-free

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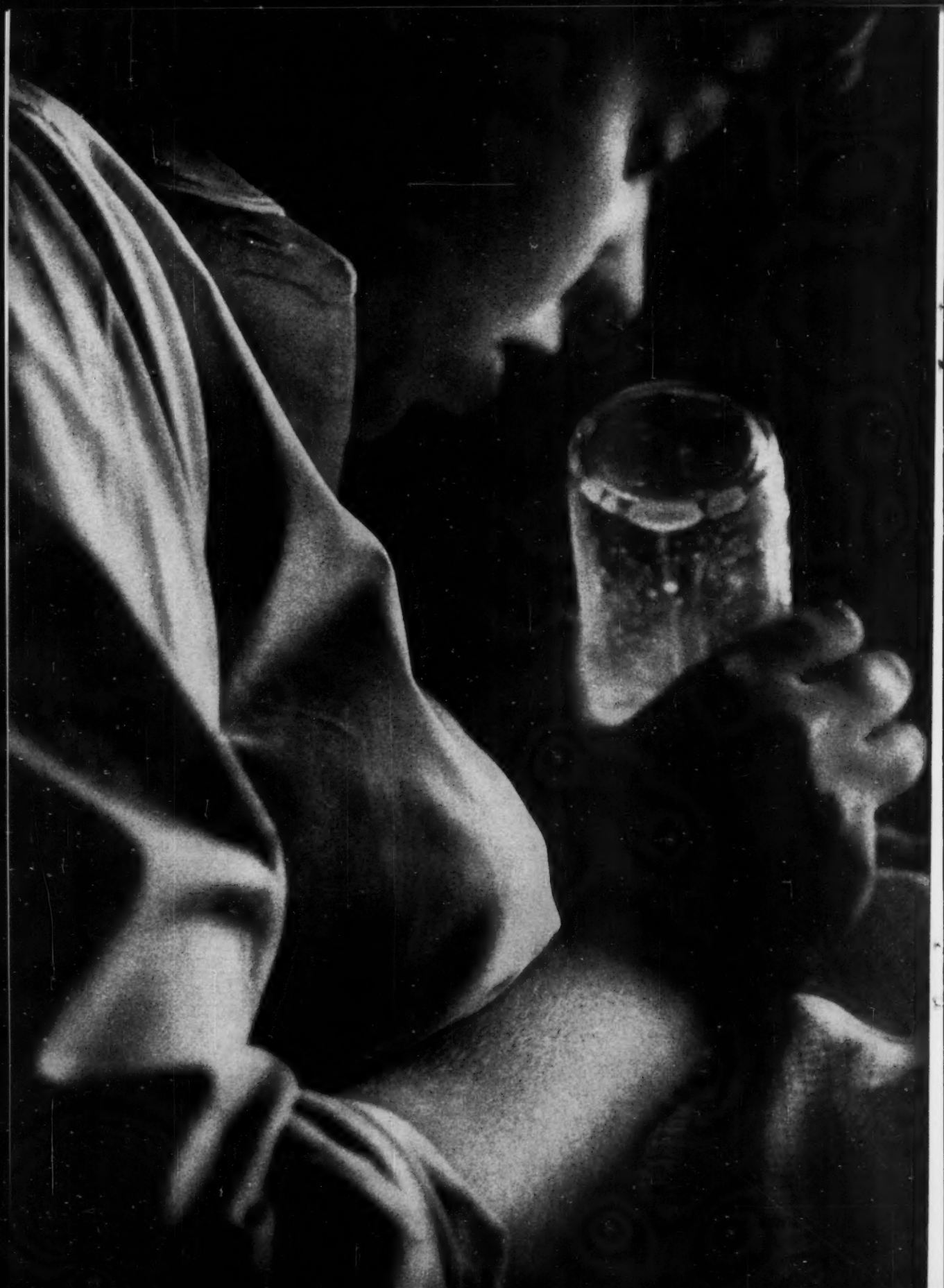

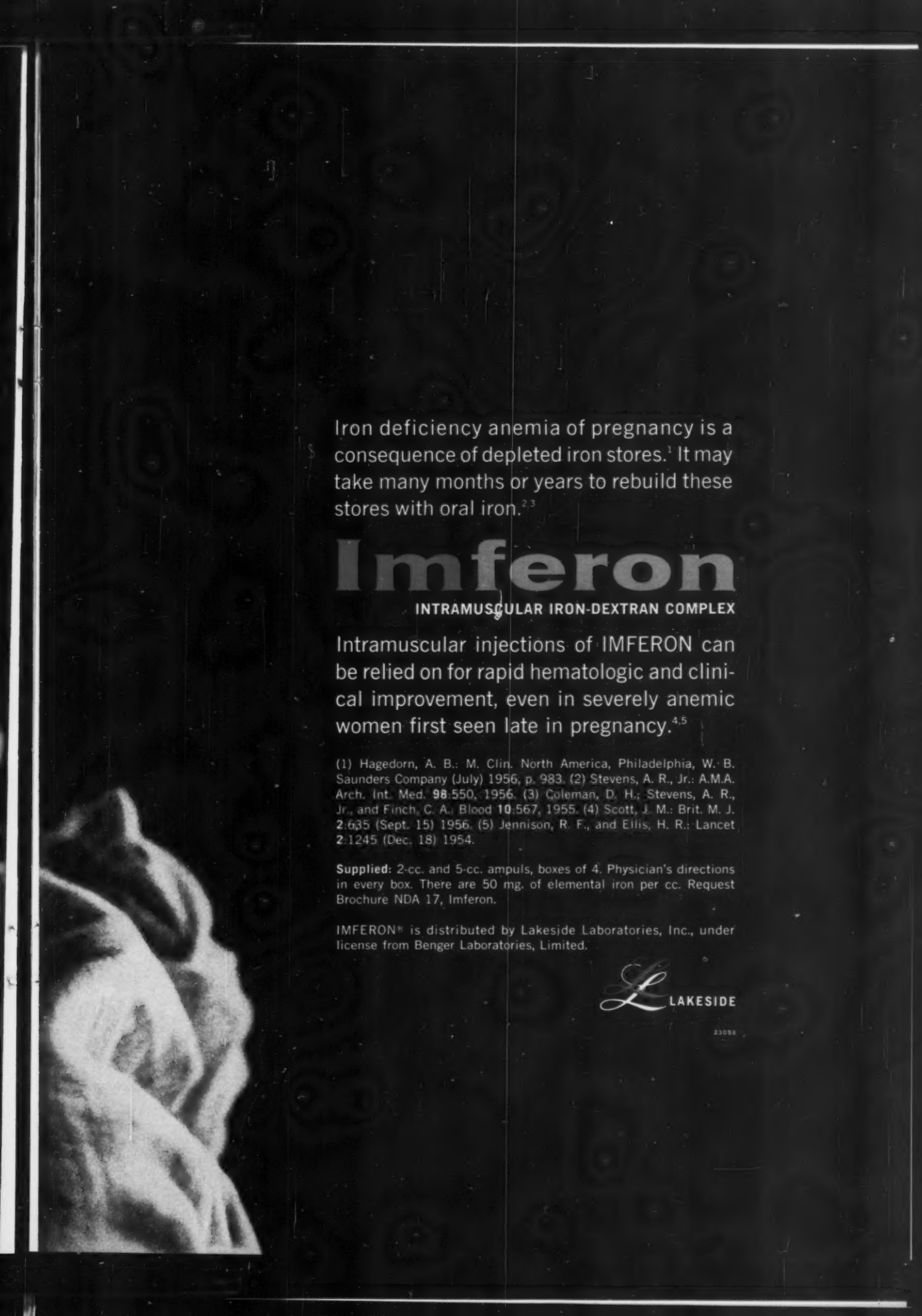

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(1) Hagedorn, A. B.: M. Clin. North America, Philadelphia, W. B. Saunders Company (July) 1956, p. 983. (2) Stevens, A. R., Jr.: A.M.A. Arch. Int. Med. **98**:550, 1956. (3) Coleman, D. H.; Stevens, A. R., Jr., and Finch, C. A.: Blood **10**:567, 1955. (4) Scott, J. M.: Brit. M. J. **2**:635 (Sept. 15) 1956. (5) Jennison, R. F., and Ellis, H. R.: Lancet **2**:1245 (Dec. 18) 1954.

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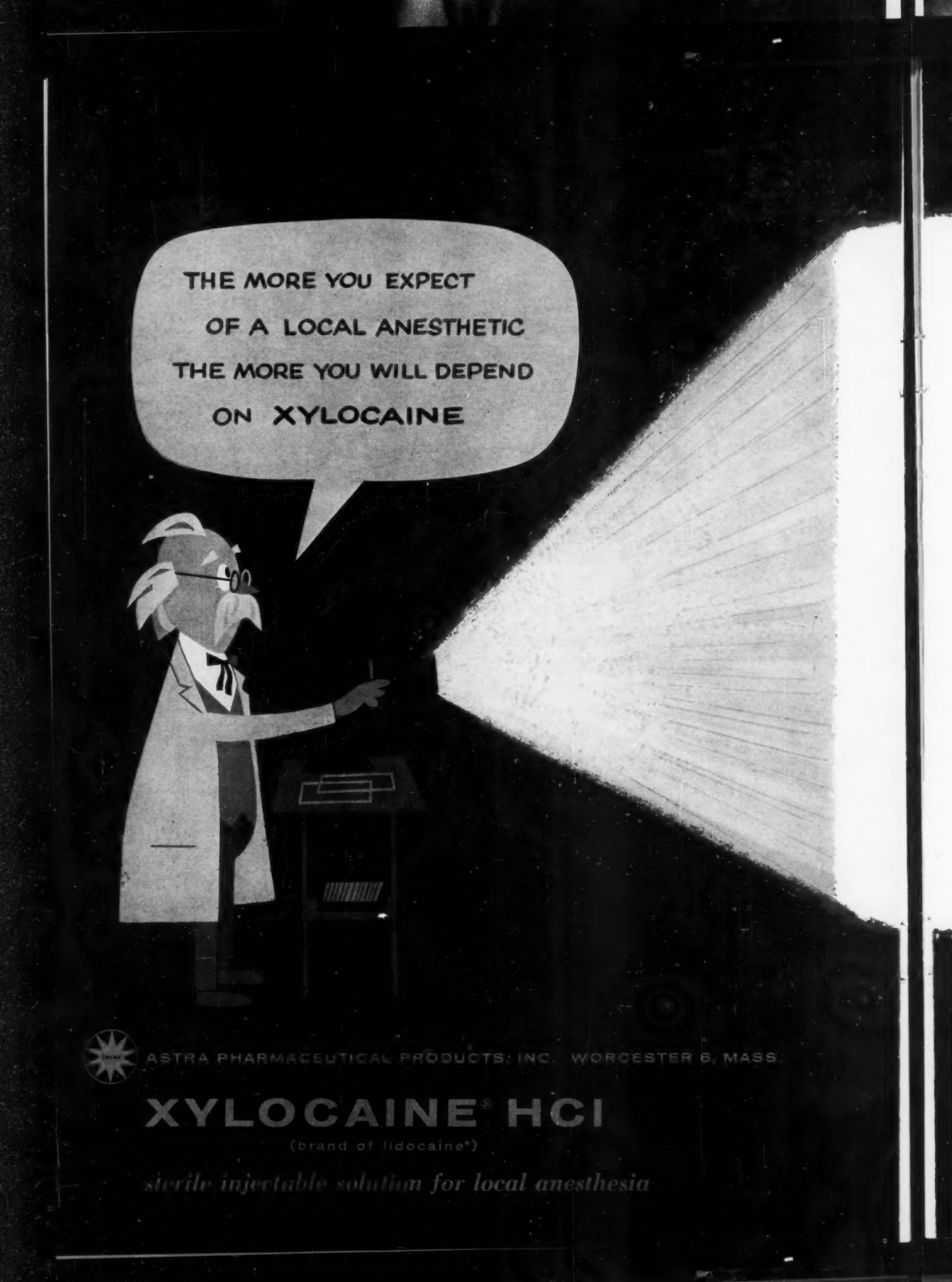

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FROM OTHER PAGES

Luke, the Beloved Physician

In the fourth Chapter of Paul's Epistle to the Colossians, verse 14, we find the words "Luke, the beloved physician." . . . There . . . still is argument about who Luke actually was, but the consensus of opinion is, . . . that he was a Gentile by birth, a physician by profession, a Christian by conversion, and a friend of St. Paul's by choice. Luke does not once mention himself by name in either of the two histories which he wrote, the Gospel and Acts of the Apostles, but it is certain that he was a native of Antioch in Syria, and that his ancestry was Greek. . . . Antioch was a university town, and Luke would receive there as good an education as was possible in those days. In due course he qualified as a physician, and some time after graduating he set up his plate in Troas, another cosmopolitan city where Europe and Asia met.

We do not know whether or not Luke was a Christian when he went to practice in Troas, but here he certainly became one. Paul, on his second missionary journey, arrived in Troas, to be smitten down by his chronic illness, his thorn in the flesh, which in all probability was trachoma. . . . Paul went to consult Dr. Luke in a professional capacity. It was a fair exchange—Paul left the surgery with renewed hope for improved physical health, and Luke went with him and became "the brother whose praise in the Gospel is spread through all the churches." He was still a physician, but now his words were prescriptions to bring comfort to ailing souls. . . . If we ask what manner of man Luke was, the answer is: "By his books ye shall know him." Luke was a writer of consummate skill. Merely as a piece of literature his Gospel is one of the treasures of the world. . . . He is a master of narrative and of pen-portraiture, and yet his dramatic power and pathos are accomplished by a simplicity and economy of touch which are unexcelled. . . .

Luke must be ranked as the first Christian hymnologist. It is to his inspired care that we owe the preservation of the hymns which have been most used in the Church: the Ave Maria, the Gloria in Excelsis, the Benedictus, and the two which, in the Church of England, we usually sing at Evensong—Mary's song of praise and thanks to God for choosing her to be the mother of Our Lord, the Magnificat, and the Nunc Dimittis, uttered by the aged Simeon when he held the infant Jesus in his arms in the Temple, and thanked God that he had been spared until he had seen "the Lord's Christ." . . .

Here, oftener than in any other Gospel, do we see Christ kneeling in prayer, praying before His Baptism, praying in solitary places, praying before He chose the Twelve, praying on the Mount of Transfiguration, in the Garden, and on the Cross. . . . Luke dwells on Christ's tenderness to women; this shines out in the idylls of Elizabeth, Mary and Anna. It is there also in the stories of the woman who was a sinner, of the son of the widow of Nain "the only son of his mother, and she was a widow," and of Martha and Mary. . . .

Nowhere else do we find such emphasis set on Jesus as the friend of publicans and sinners, the despised tax gatherer, or the penitent thief. The pride of wealth and rank is continually assailed. The note sounded in the Magnificat "He hath regarded the lowliness of his handmaiden," and "He hath put down the mighty from their seats, and hath exalted the humble and meek." . . . Lastly, it is the Gospel of Joy. Early in the Gospel we read: "I bring you tidings of great joy," and it finishes on a similar happy note: "and they (the Disciples) returned to Jerusalem with great joy." It is small wonder that St. Luke's is the favourite Gospel of many, as this note of joy, courage and triumph sounds throughout the whole story.—A. C. D. Parsons, M.D., Luke the Beloved Physician, *New Zealand Medical Journal*, December, 1957.

Quite a Spell!

COLUMBUS, OHIO.—To meny Ohio State Unavursitie studants cant spel fer nuthin.

The hilarious—but somewhat dismaying—spelling foibles of today's college students have come to light in the latest issue of the Ohio State University Monthly. Sadly enuf (pardon, enough), spelling purists should know that many of the odd-ball spellings in the first paragraph of this story were lifted from documents that the students themselves filled out. The report on atrocious spelling was made by Dr. William T. Palchanis and Dr. William C. Stahl of the university medical staff. They went to the trouble of putting quotation marks around the misspelled words, but here are some excerpts from their report, minus the identifying marks, just for fun:

"Students have reported on their medical histories such childhood illnesses as measels, bronicle nomonia, hooping cough, rumatic feavor and diptherie. During their adolescence many are afflicted with asma, accute apendisidus (usually followed by an appendictmy), heart mummers due to rhuematic fever, stummach truble and toncillitas.

"As a hobbie some list swiming and bolling, some build modle airplanse, while others are interested in antigue cars and saling boats. One just enjoys listening to musik.

"Many students in describing their present health will indicate it is excellent, some described it as vary good and others simply state that they are in good phiscul and mentle condition."—Associated Press release in Michigan City, Ind., *News-Dispatch*, March 13, 1958.

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BUTAZOLIDIN being a potent therapeutic agent, physicians unfamiliar with its use are urged to send for detailed literature before instituting therapy.

(1) Denko, C. W.; Ruml, D., and Bergenstal, D. M.: Am. Pract. & Digest Treat. 6:1865, 1955. (2) Kuzell, W. C., et al.: New England J. Med. 256:388, 1957. (3) Smyth, C. J., and Clark, G. M.: J. Chron. Dis. 5:734, 1957.

BUTAZOLIDIN® (phenylbutazone GEIGY): Red coated tablets of 100 mg. BUTAZOLIDIN® Alka: Capsules containing Butazolidin (phenylbutazone GEIGY) 100 mg.; aluminum hydroxide 100 mg.; magnesium trisilicate 150 mg.; homatropine methylbromide 1.25 mg.

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- produces double the weight loss achieved by dietary means alone[1,5]
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- no reports of significant toxic reactions[1-4]

—well tolerated for use in moderate hypertension, chronic cardiac disease or diabetes.

(1) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. *1*:155, 1956. (2) Holt, J. O. S., Jr.: Dallas M. J. *42*:497, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. *7*:1456, 1956. (4) Council on Pharmacy and Chemistry, New and Nonofficial Remedies: J.A.M.A. *163*:356 (Feb. 2) 1957. (5) Ressler, C.: J.A.M.A. *165*:135 (Sept. 14) 1957.

PRELUDIN® (brand of phenmetrazine hydrochloride). Scored, square, pink tablets of 25 mg. Under license from C. H. Boehringer Sohn, Ingelheim.

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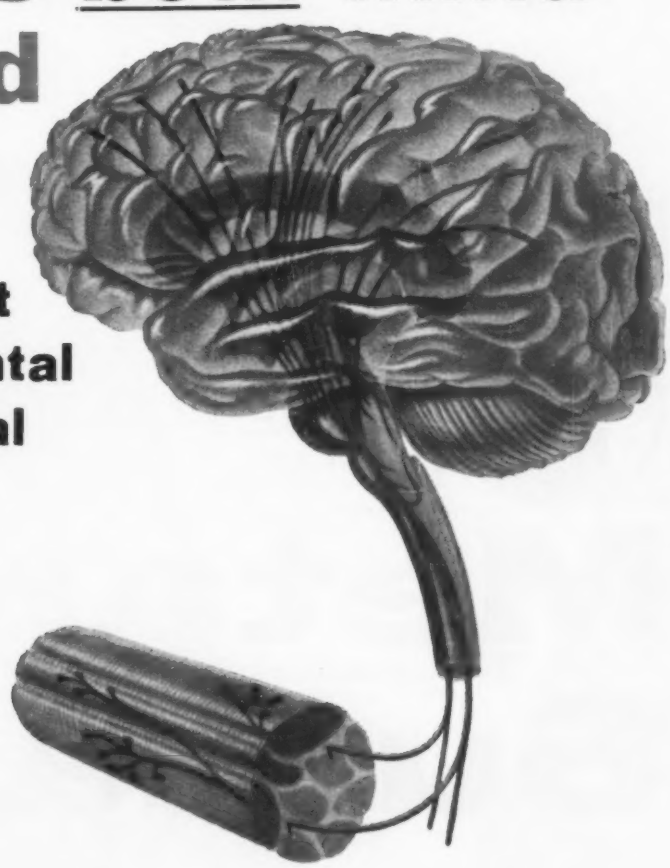

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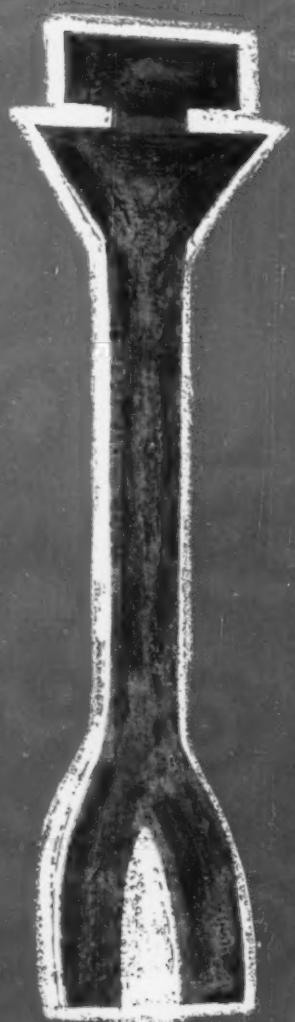

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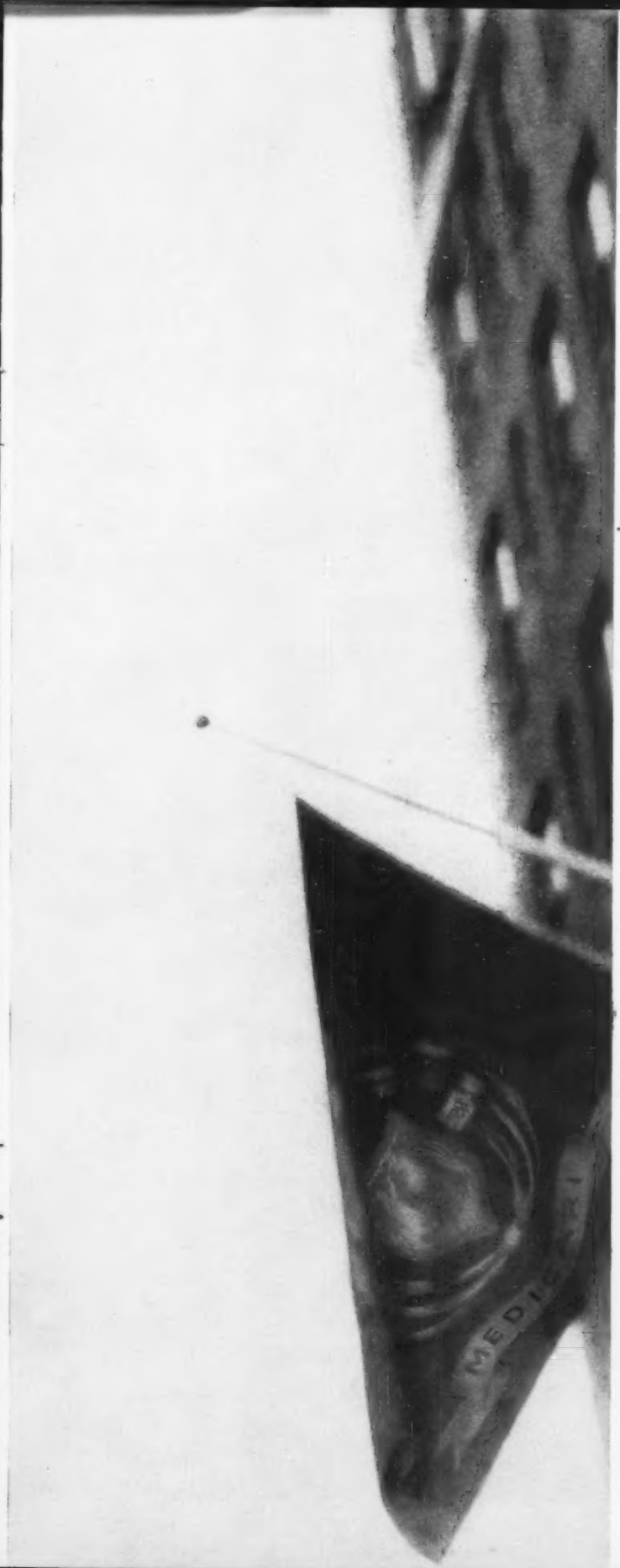

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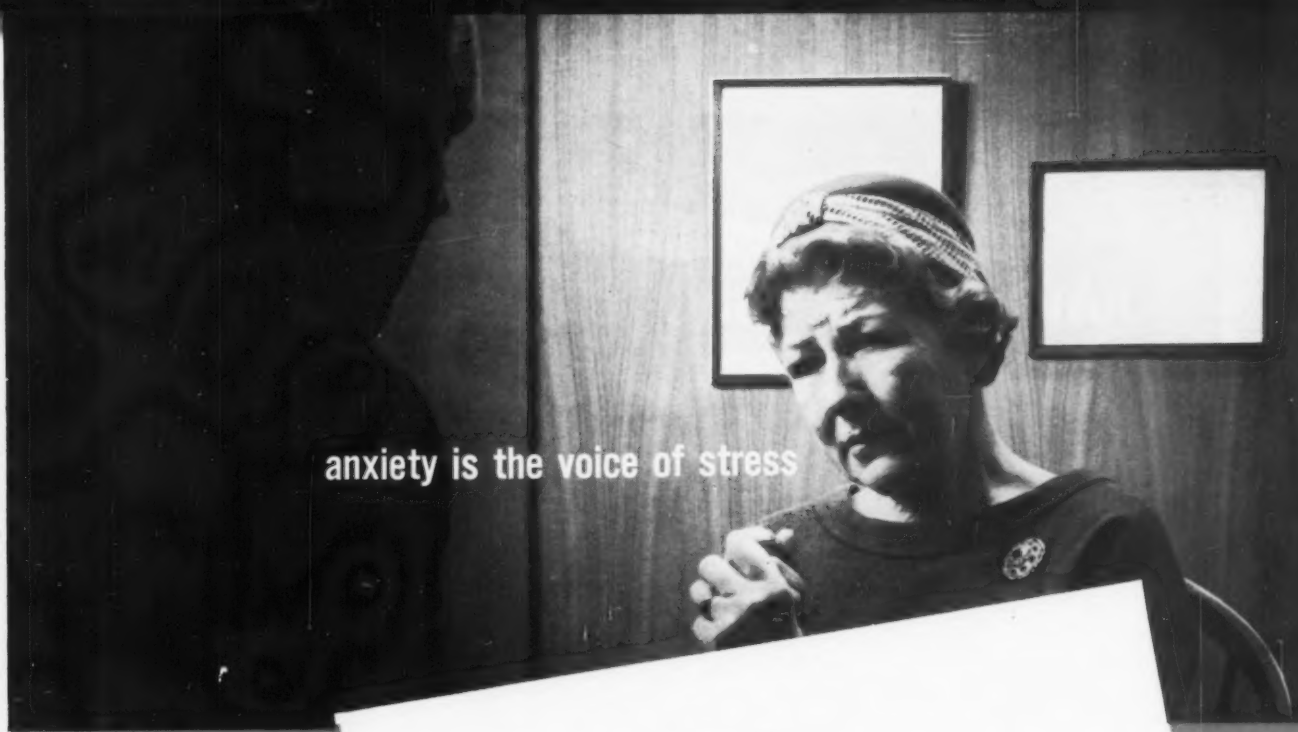

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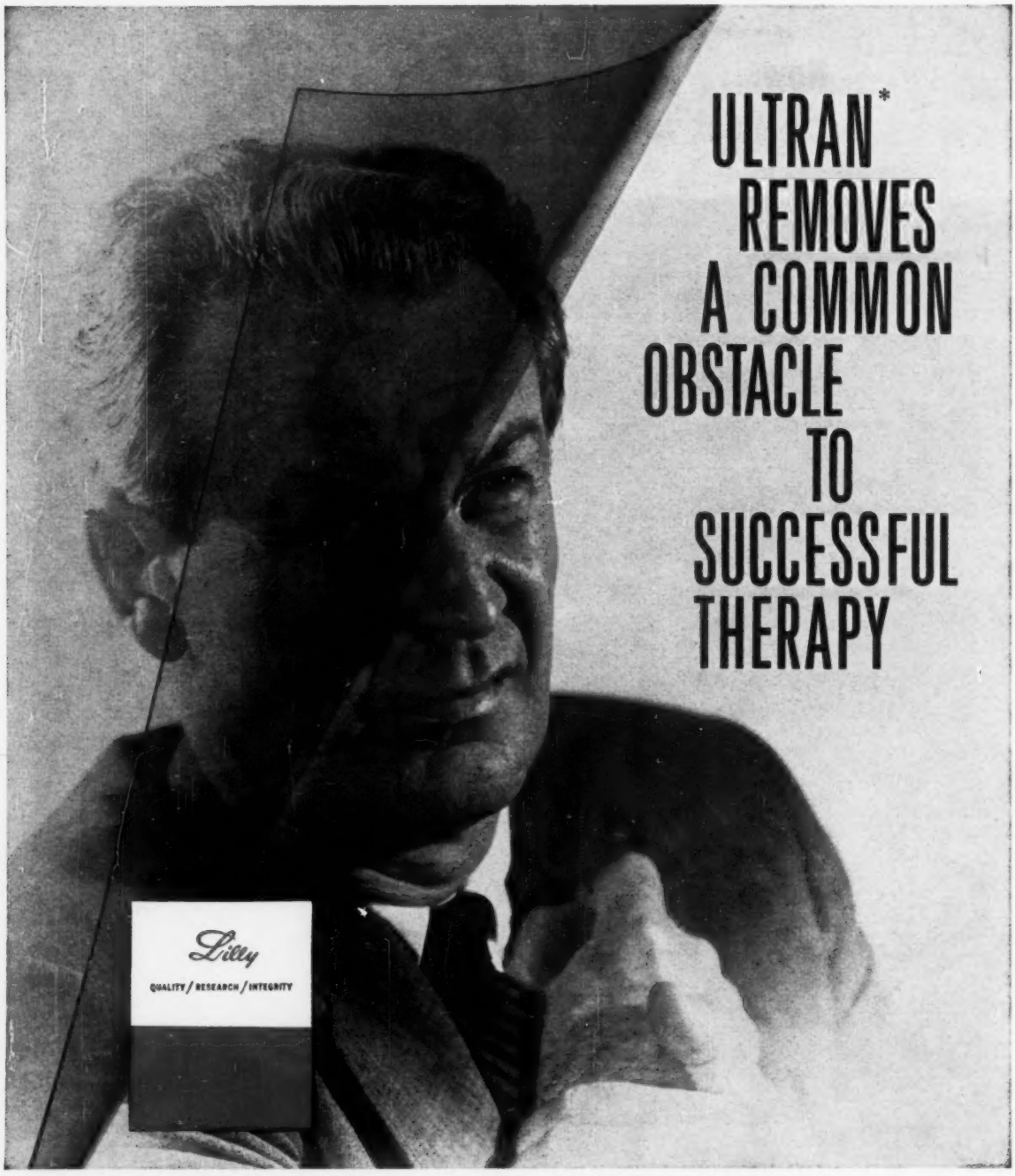

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VOL. 167, NO. 5 — CHICAGO, ILLINOIS — MAY 31, 1958
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RESPONSIBILITY OF HOSPITALS IN GRADUATE MEDICAL EDUCATION

Robert I. McClaughry, M.D., Detroit

Each hospital approved for internship or residency represents itself to physician applicants as an educational institution. At present the main authority under which most interns and residents may be considered to fall is that as an employee of the hospital, and not as an enrollee in an educational program. There has been a reluctance of the medical staff to accept educational responsibility, and a significant factor in their reluctance has usually been a lack of authority to implement changes as they see fit. In order to perform their educational function, those engaged in instruction should be organized into a faculty, and in order to avoid omissions and duplications curriculums must be developed. The present status of hospitals in this country as regards acceptance of educational responsibilities leaves much to be desired, but a review of the factors at work suggests plans for improvement.

ARE WE SATISFIED with the job now being done in graduate medical education in the community hospitals in the United States? Obviously we are not. Discontent with conditions for educational accomplishment in these hospitals has already given rise to an organization which serves as a forum, the Association of Hospital Directors of Medical Education. For this organization to be most effective, however, it is necessary that its discussion be directed to the roots of our present unsatisfactory position. From the results of this search, an ideological basis must be found for actions to improve existing conditions. Only in this way will a lasting improvement in hospital educational programs be likely to result.

In this presentation, the results of several years of thought and study related to the basic nature of the problems facing us in hospital education are given. This will be my personal interpretation of many separate factors and trends. No apology is offered for the personal nature of this evaluation, nor is any brief held for its uncritical acceptance. I do request its serious consideration, however, for it provides the basis for suggested goals toward which our future efforts may be directed.

Responsibilities of an Educational Institution

Each hospital approved for internship or residency represents itself to physician applicants as an educational institution. It is to a position of educational opportunity that the appointment is made, and, if considerations of service and remuneration are not secondary to this, the hospital neglects the principal object of the appointment. Since it is the hospital which assumes the role of

Director of Medical Education, Providence Hospital.
Read before the Association of Hospital Directors of Medical Education, Chicago, Feb. 8, 1958.

the educational institution, it can be seen that the primary responsibility for the excellence of its educational programs rests with each hospital itself and not with any outside agency.

There are only two real services which an educational establishment can offer. One of these is to provide the easiest possible access to opportunities for learning, and the other is to evaluate the accomplishment of the learner so that unsatisfactory progress in any area of work leads either to correction of the deficiency or to the timely elimination of the student unsuited to the task selected. If these two goals are chosen and closely adhered to, professional service becomes a major byproduct of the system. The individual who is thoughtfully encouraged to increase his professional stature continually gains in ability to perform useful professional services. On the other hand, the individual who is constantly called on for the repetitive performance of duties without continuing intellectual challenge is soon reduced to doing his tasks in a routine and perfunctory way. He will then soon lose the precious habit of mind which distinguishes the professional worker: the inner need to overcome his ignorance as completely and rapidly as possible.

If, then, elevation of the standards of hospital education is to be brought about, it must be accomplished by acceptance within the hospital of educational responsibility. Once this responsibility has been accepted, it no longer suffices to say that there is plenty of material for learning if only the interns and residents would take advantage of it. Rather, the questions which constantly recur are whether there is another opportunity for learning which may be suggested to the house staff and whether the fullest result (as measured by gain of knowledge and understanding) was obtained from past efforts.

This view also places external examinations in a different perspective. At present, the only usual formal evaluation of persons in graduate medical programs is that of examination by the American boards in the various medical specialties. While the definite value and importance of these examinations is recognized, this fact serves to indicate the degree to which the hospitals have abrogated their educational responsibility. The institution which desires to improve itself cannot permit evaluation to wait until after completion of its entire course of study. Periodic checks of progress are necessary in order to properly supervise the work of anyone undertaking specific educational objectives.

The process of supplementing the external examination with internal means of evaluation, however, promptly points to the lack of any curricular structure in graduate medical education. General goals have been fairly well established. That this is so is evident from the relative effectiveness of the board examinations in screening out those inadequately prepared for the certificate of the board.

For these general goals to be most useful, however, they must be critically considered from the standpoint of defining a specific body of knowledge and then of discovering the logical interrelationships among the various parts of the discipline. In this way, it is possible to divide the broad general goals into more specific subgoals which can be evaluated on a periodic basis, as most universities do each semester.

If this is done, the teacher can then have a clear idea of what is expected of him and of the student. We have seen examples of the clinician who talks well about perhaps three or four types of clinical problems and who repeats these talks on nearly every bedside teaching exercise he conducts. While this is an extreme example, it is true to a greater or lesser degree of all who use this method. It can, however, be minimized by careful planning. The usual result of any unplanned teaching exercise is that it causes frustration and loss of interest among those who participate. Without planning, no one can fit the presentation of a subject to a particular audience, regardless of how familiar he may be with the subject. This points to the need for knowing beforehand exactly what will be taught.

If, as has been suggested, a residency consists of the study of the same subjects in each of two or three years, with progression in responsibility as the chief ingredient of change, then this program can best be characterized as a technical training unsuited to a scholarly profession. If, on the other hand, each of the medical specialties does have a definite body of knowledge, the development of curricula for the orderly presentation of this information is sorely needed.

To recapitulate briefly, the basis for the unsatisfactory conditions in hospital medical education programs has been stated in terms of proposing two needed developments. One of these is the need for the hospitals to assume educational responsibility for the advancement of their appointees. The other, which is a corollary of the first, is the need to develop curricula for the orderly presentation of the content of the programs and to facilitate evaluation of accomplishment before completion of the course of study.

Development of Hospital Education

In order to understand the way in which the present circumstances have developed and to predict where the greatest difficulties will lie in bringing about projected changes, let us examine certain features of the historical perspective in hospital education. The changes which have occurred in all phases of medical education and also in the use of hospitals in the past half-century have been unprecedented. Many of these changes have specifically affected internships and residencies.

Perhaps the most clear-cut example of the effects of the change in the use of hospitals concerns the internship. In general, the medical school graduate

of the first decade of this century left school with very little practical experience in the care of sick persons. As a result of this background, these graduates sought internships in which they would have opportunities for taking an active part in patient care without having the ultimate responsibility assumed by their colleagues who plunged directly into independent practice. The success of the internship has been clearly demonstrated by the growth of this form of medical training.

Almost simultaneously, however, the medical schools, largely under impetus from the Flexner report,[1] were instituting clinical clerkships. These exercises gave the medical students a great deal of opportunity for a supervised role in patient care. Along with this development, doubts occurred as to whether the clerkship had completely taken over the role previously played by the internship. The Advisory Committee on Internships to the Council on Medical Education and Hospitals of the American Medical Association considered this question and in their 1953 report[2] said, "In our unanimous opinion, a subsequent intern year, properly planned, continues to have an indispensable function in the doctor's education. True, when poorly planned, the intern year can seem at the time an onerous repetition of the clerkship, but even under these circumstances, in retrospect it has often seemed to bring confidence and skill in the performance of basic medical functions." In all of their discussion of the problem, however, it was only the feeling that the clerkship alone does not adequately prepare the physician for practice, and not a definition of what is to be added through the internship, which guided the committee.

The question remains, therefore, as to what is to be specifically expected of the internship. If the gaining of confidence and skill in applying already known basic information is the aim, this indeed constitutes a clinical apprenticeship; the chief role of the hospital staff becomes the provision of adequate supervision. My own feelings are not entirely clear, in part because my own internship did have value in my professional development and in part, also, because of the feeling that this development was, indeed, chiefly technical. In the absence of a defined scope for the internship, however, the value of its continued existence does seem doubtful. Can it be replaced by the study of a better delineated body of knowledge? If so, this will require definition of exactly what is to be studied.

A similarly striking effect on the goals in hospital educational programs has resulted from the formation and the increasing prestige of the specialty boards. Because of the advantages gained from certification by the boards, their requirements are generally regarded as the basis for planning a residency program. This is in sharp contrast to the present state of planning in medical schools, where the requirements of the state boards of medical examiners are really quite incidental to the individual schools' interpretations of how their programs may be strengthened. It is well to add, however, that it has not always been so and that the elevation of medical school standards to this point has indeed been one of the dramatic stories of American medicine.

One very significant change which has occurred, almost insensibly, in residency programs has been the replacement of accomplishment by periods of time as the criterion for completion of the residency. This has resulted in large part from the rapidly changing emphasis on specialization in medicine. The residency, as established by Osler and his colleagues at the Johns Hopkins Hospital, was essentially the selection and nurture of protégés by the professors in this outstanding medical school.[3] The aim was the preparation of a few men in an outstanding fashion for the then unusual career of teaching and research in the clinical fields. As the idea of residency in the various medical specialties spread, however, tremendous variations in the type and quality of such programs developed, and many physicians were spending only very short periods of time in such programs before setting themselves up as specialists. From this chaos, the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals have brought order by establishing minimum times to be spent in residency before admission to board examinations and, also, by approving hospital residency programs. These means, important as they are, represent only one part of the solution to the problem. Until the educational achievement of each resident is recognized as an obligation by his hospital, further progress seems unlikely.

Still another historical development which has had a striking effect on hospital education programs is the rapid increase in utilization of the hospital. Despite the fact that a decreasing proportion of hospitals have approved educational programs, there is a constantly increasing number of internship and residency appointments available to each physician applicant. Since the primary orientation of the present programs is toward the participation of interns and residents in patient care, their absence results in real problems in this area. Filling house-staff positions in order to meet service needs is a major concern of many hospitals, as is indicated by the urgency in appointing foreign graduates to vacant positions.

Another aspect in the change in hospital use is the decrease in numbers of charity patients. While we welcome this as an evidence of expanding economy and of the success of medical prepayment, it is not an unmixed blessing. The charity patient has played a key role in hospital education programs, even in private hospitals. Certainly, surgical program directors illustrate this condition most sharply, with their increasing concern for operative clinic material for their residents.

The shorter duration of hospital stay which has resulted from early ambulation of surgical patients and from increased public recognition that the hospital is no longer a place where one goes to die has also affected the pattern of education within the hospitals. With an increasingly rapid turnover of patients, a significantly greater portion of the time of the house staff is taken up by the initial examination of patients. To the degree that sufficient time is available both for the first acquaintance with the details of a patient's problem and for proper follow-up of his later progress, this is an advantage. A too frequent result, however, is that the physician is overwhelmed, and so a routine and slipshod job is done of all aspects of the study of the patient.

Organization for Education

All of these changes have resulted in increasing obligations on the hospital from the standpoint of medical care, which is its first responsibility. Since the educational function of the hospital is secondary, the usual absence of an effective instrument for the execution of this function serves to exaggerate the difficulties. It is to meet this problem that an effective organization for education within the hospitals becomes necessary.

The establishment of such an organization for educational responsibility must be a function of the medical staff along with the administration of the hospital. There are a number of reasons, however, why there is reluctance on the part of the medical staff to undertake this obligation. Probably the most significant is that membership on a hospital staff is predicated on ability to care for patients, with teaching interest and ability, in most cases, as an incidental characteristic only. Also, regardless of the type of hospital we may consider, the members of the medical staff are busy men, with heavy time obligations to their patients, to medical school teaching, or, less commonly, to research. So, time spent in other activities must be recognizably productive.

Planning of hospital educational activities seems to require spending nonproductive time. Each of us, to a greater or lesser degree, takes for granted the automaticity of a well-planned performance. Those of us who have conducted any public programs, however, can testify that the automatic appearance is a delusion. Yet even this realization does not serve to make able physicians anxious to spend time in such planning.

Another problem facing any group undertaking planning of graduate medical education curricula is the lack of guides to follow. As yet, we have only begun to see the results of various experimental programs tried in different hospitals throughout the United States. But, in general, departures from some modification of the apprenticeship principle for graduate medical education are still quite infrequent.

A constant discouragement to the medical staff in undertaking a great deal of work on the part of the hospital educational program is the competition which exists among hospitals for suitable candidates. A school without students doesn't have much meaning, yet this is precisely what is asked of many medical staffs. It is necessary, but very disheartening, to plan what shall be offered in an internship or a residency with the realization that the program being planned may never be put in operation because the positions will not be filled.

A significant factor in the reluctance of the medical staff to accept responsibility is their usual lack of authority to implement changes as they see fit. It is quite unusual, for instance, to have a specific budget established for hospital education. Yet this is one of the things most strongly stressed in the Functions and Structure of a Modern Medical School,[4] which represents a close counterpart to these programs. Also, the main authority under which most interns and residents may now be considered to fall is that as an employee of the hospital, and not as an enrollee in an educational program. These limitations in authority are often the source of resignations from positions of importance in planning for hospital education.

Principles for Effective Education

From the statement of the needs and the evaluation of the influence of certain events in explaining the development of our present situation, it is evident that the solution to our problems will not be a simple one. There are, however, certain principles which may guide the work toward greater effectiveness in hospital education. Neither these principles nor their statement is original with me. They have been derived largely from the striking analogy between the conditions which existed in the medical schools prior to the relatively recent reforms and those now existing in the hospitals.

The first principle is that those engaged in instruction should be organized into a faculty. The independent teaching of several men without consideration of what each is to do is wasteful both for the teacher and for the student. The individual merits of each man cannot be properly exploited without an organizational basis. The necessity for this development has long been recognized among the communities of scholars in universities; the need is equally great, in my opinion, in hospital programs. The pattern of the faculty will undoubtedly be unique. Neither the present organization of medical school faculties nor that of departmentalized hospitals seems best adapted to the needs of the suggested programs. It is probable, although, frankly, a little frightening from the standpoint of costs, that the development of the faculty organization will lead eventually to the use of full-time teachers, as it did in undergraduate medical teaching.

The second principle is that curriculums must be developed. It is probably unfortunate that, in thinking of curriculum, the common connotation is that of a rigid structure. The definition given by Deitrick and Berson in "Medical Schools in the United States at Mid-Century" impressed me because it did not include this emphasis. They said, "The curriculum is the loom on which the cloth of medical education is woven." [5] This places it in proper perspective—as a tool, not as a master. In curriculum development, a practical means is found for the implementation of the purposes stated earlier for an educational institution, namely, to provide opportunities for learning and to evaluate the use made of them. It is my firm conviction that each medical discipline has a distinct body of knowledge that can be defined adequately for proper curriculum development.

If this program is undertaken, a new scope will be given to the discussion of common problems in hospital education. All of the concerns with developing criteria for evaluating progress of the individuals within the various hospital programs, of the individual programs themselves, and of the standards for the programs throughout the country will require renewed attention.

In my opinion, this points to the ultimate goal of the Association of Hospital Directors of Medical Education. A significant factor in the assumption of educational responsibility by an institution is that it now should undertake participation in the program for accreditation. This leads to the statement of the last principle of the proposed solution, which is that the continuous elevation of educational standards should be sought by the participation of the responsible institutions in the procedure of accreditation.

The Association of Hospital Directors of Medical Education now represents the feeling of dissatisfaction with existing conditions in the hospital education field. It also constitutes a forum for discussion, aimed toward improving educational conditions. It appears logical that it might also develop into a selective society with the associated function of participating in accreditation. By this means, its aims could be accomplished without the necessity for becoming a pressure group but only by the time-tested means of pulling ourselves up by our bootstraps.

Summary

In establishing graduate medical education programs, hospitals are forced to assume responsibilities secondary to their primary reason for existence. These are the responsibilities of an educational institution, namely, to provide specified opportunities for learning and to evaluate the accomplishment of the learner. The present status of hospitals in this country leaves much to be desired in the acceptance of these responsibilities. A view of the influence of many factors on this present state of affairs provides perspective for improvements. An effective instrument to meet these educational responsibilities is required. Specific needs for a distinct faculty organization, for development of curriculum structures, and for participation of the hospitals in the elevation of educational standards are all derived by reference to the general experience of other educational efforts.

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OUTPATIENT CLINIC IN THE TEACHING PROGRAM OF THE VOLUNTARY HOSPITAL

Frank A. Solomon Jr., M.D.
and
John L. Leishman, M.D., San Francisco

The plan here described resulted from recognition of the need for a continued house-staff training program, for an outpatient clinic, and for house-staff participation in its management. Each intern spends one half-day each week in this clinic. Instead of former arrangements by which the patient rarely saw the same intern twice, the scheduling and division of work is such that the same intern takes the history, does the initial physical examination, has the help and guidance of either a preceptor or the director of medical education, sees the patient again at subsequent visits, and follows him through consultations or hospitalization as the case may be. The organization of bedside rounds, clinical pathological conferences, and departmental conferences increases the effectiveness of the program. An outpatient service so organized enables the nonaffiliated hospital of moderate size to offer the intern substantial help as he makes the transition to full patient care and responsibility.

Many factors in the postwar years have caused the hospital of moderate size unaffiliated with a university to reevaluate its basic assets in order to maintain a place in competition with larger and more affluent institutions for house-staff service. Among these are the following factors: (1) the absorption by the federally subsidized institutions of a large number of graduate physicians through the attraction of good housing, adequate compensation, expanded and often university-supervised teaching, and arrangement for dependent care; (2) the great increase in medical techniques requiring house-staff service for performance and which must be available if the hospital is to maintain its position of supplying community care; and (3) the expansion of the insurance principle with corresponding reduction of clinic patients available for teaching. Many institutions of 250-to-500-bed status either have abandoned house-staff training programs in the face of such difficulties or have been deprived of approval of existing programs through failure to respond to the challenge offered.

An intern in our hospital during the years just preceding the entry of the United States into World War II—the period of many disconnected services of short duration—found the outpatient clinic largely an elective or drudge service held together by a few faithful physicians who donated their time to the care of their less fortunate brethren. One of us (F.S.) can well remember that, in the case of one revered man, who died in the service of his country, the simple announcement by the intern, "Doctor X will be unable to see his patients today, but I will be glad to help anyone who would care to stay," would result in at least 90% of the "clinic" departing until the next week.

The lush days of war work, service dependents' care, and home-physician shortage all but stifled the outpatient clinic. However, the return to a peacetime economy reestablished the need for an outpatient clinic and with it an increased demand for house-staff participation in its management. This was stimulated both by lack of time on the part of the attending physicians and by desire for work with his "own patients" by the house physician. The prewar intern found himself returned to this situation as "outpatient consultant" in the curious position of being resented on the one hand by the house physician for "taking over the patient," and on the other by the patient for not continuing the treatment. Furthermore, the neglected outpatient service had not been coordinated with the new rotating internship through medicine, surgery, obstetrics, gynecology, and pediatrics. It was still used as a stopgap service, usually four to six weeks as part of the medical service, so that a two-way objection to the outpatient service seemed quite valid. This was that the service was so short that neither patient nor intern was likely to see each other a second time, certainly not a third time. This militated against both a good continuing regimen for the patient and an interest in results for the intern.

In 1954, one of us (F.S.), a prewar intern and, from 1947, a postwar consultant, was made the medical director of the outpatient clinic, and at about the same time a news story of front-page interest pointed up these objections. A house officer in a university hospital clinic was shot to death by a discontented patient, and, when asked why he had shot this particular doctor, the patient is re-

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ported by the press to have replied, "They are all alike; you never see the same one twice," or words close to these.

It was decided then that this neglected outpatient service could better serve both patient and doctor and, in being reorganized to this purpose, should be able to demonstrate a community and educational function difficult for larger and more impersonal hospitals to duplicate, whatever their other advantages, sufficiently satisfying a need for self expression in training by the intern to stimulate application for house-staff positions. Accordingly, beginning in 1955, with the help of one of us (J.L.), then chief medical resident, the outpatient clinic service was reorganized. The present paper is a report of this organization and its results to date.

Method

Each intern spends one half-day each week in the clinic, a total of 26 days or approximately five "working weeks" a year—about the average of his stay in the clinic under the old system. The new arrangement, therefore, cannot be said to have taken him away from other duties excessively. New patients, after interview by the social service worker to determine eligibility and status and to take the social history, are assigned by appointment rotation to an intern who then remains this patient's doctor for the remainder of his service unless for some valid reason on the part of the patient or physician a change seems advisable; free choice of physician is thus encouraged.

At the first visit, the intern records the history and performs the complete physical examination, ordering such laboratory and x-ray aid as he thinks may be indicated and the need of which he must be prepared to defend. Subsequent follow-up appointments are made for the intern's regular clinic, and at the first of these the case is reviewed with a consultant, one of the volunteer visiting staff who is assigned to each intern at the beginning of the year as preceptor. The intern's plan of investigation and/or therapeutic regimen is criticized. The case is continued under the care of the intern in the clinic with as little interference on the part of the preceptor as possible. If specialty consultation is required or desirable, this is made to the several clinics which are managed by the resident staff with its staff specialist consultant. The resident may either return the case to the intern or, if it provides sufficient teaching interest at the resident level, assume responsibility himself. In either event, the intern follows through to the consultation. Should the resident take charge for this particular illness, for any subsequent complaint the patient returns to his own intern physician.

Patients requiring hospitalization automatically fall to the responsibility of the resident staff, but the intern is expected to follow his patient to and during the hospital stay, furnishing the hospital history, physical status, and the discharge note to the clinic record. Emergencies are, of course, met with the day they occur by whatever intern is on duty.

Obstetric patients are assigned as nearly as possible according to the expected date of delivery to the intern who would be on the inpatient obstetrics service at that time. The resident in obstetrics meets for one half-hour at each intern session, and all obstetric patients are seen by the intern with him at that time.

The preceptor concept is a somewhat broader one than that of strictly teacher or guide. He is expected to take a personal interest in the intern, helping him apply his knowledge of the art as well as of the science of medicine, assisting him in deciding his future course in the profession, and aiding in his personal, family, and financial problems as and if these arise.

The whole venture is coordinated by the medical director of the clinic (F.S.), who, in 1956, also assumed the position of director of medical education. Once a week he conducts clinic rounds in which hospitalized clinic patients are discussed, one by one, by the intern and resident responsible in whatever detail the problems of the case require. This discussion is most usually at the house-staff level, guided by the medical director (internist) with the help of the current clinic surgical consultant and a member of the staff of McAuley Clinic (the outpatient psychiatric clinic of the hospital).

The emphasis is on discussion of the patient as a whole, from his physical and emotional standpoint and in relation to his environment. This session helps the house officer's development of expression and crystallization of his course of action. We have thus far not required attendance at these meetings, yet they are on the whole better attended than many of the other meetings provided for the house staff.

Results

The program was entered into with some trepidation by many of the hospital personnel involved. Examples include the inconvenience entailed on other services the half-day the intern spends in the clinic, emergency service only being provided by the covering intern. There is also a certain amount of book-work added for the nursing personnel in the appointment books that must be kept for each intern. On the other hand, the student nurse gains by exposure to an office type of practice. Also, since we require a complete physical examination of every new patient passing through the clinic and since this requires a minimum of an hour, there has been some slowing of the reception of new patients, a matter that is disturbing to those used to only the service type of clinic. We feel this

is necessary both for the training of the doctor and for the benefit of the patient. This feeling has been somewhat overcome by the fact that the complete examination at times will reveal conditions offering opportunity for study for the resident physicians, particularly the surgical residents. At the end of two years we have encountered no opposition to the continuance of the program, and we believe that it has been one of the factors attracting the full complement of house staff we have been able to maintain since its inception.

The entire program has developed to such proportions, particularly in the past two years, that its administration has become too much for the part-time physician with a private practice; therefore, the hospital has engaged a full-time director of medical education who will become the medical director of the outpatient clinic, thus coordinating the outpatient clinic with the hospital teaching services. We were fortunate in obtaining the services of Dr. George Reifenstein, who, being certified by both the American Board of Internal Medicine and the American Board of Pathology, is well qualified to conduct clinic bedside rounds and to supervise clinical pathological conferences and departmental conferences on morbidity and mortality.

While such a program is most easily started when there are sufficient house officers to fully staff the clinic service, it would seem possible to make it work with any number of house officers available, supplementing them with the attending staff, who would necessarily be the clinic attending physicians were there no house staff at all.

Summary

The outpatient service in the nonaffiliated hospital of moderate size may be organized to enhance the intern's postgraduate training in the direction of transition to full patient care and responsibility.

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EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES GETS UNDER WAY

Dean F. Smiley, M.D., Evanston, Ill.

Since World War II the internships and residencies in our American hospitals have attracted a steadily increasing number of foreign medical graduates. Among the factors that have contributed to this development are the establishment of the State Department's exchange visitor program (based on the United States Information and Educational Exchange Act of 1948); the rapid growth of our hospitals since the Hill-Burton act of 1946, creating internship and residency positions in our hospitals considerably beyond the powers of our more slowly growing medical schools to provide interns and residents in proportion; and the growing tendency of medical graduates in large areas of the world to look to the well-equipped and research-motivated hospitals and clinics of the United States for advanced training in medicine much as our physicians looked to the noted teaching hospitals of London and Edinburgh or to the renowned clinics or faculties of medicine of Paris, Berlin, Dresden, Munich, or Vienna in the period immediately preceding World War I. The extent of this

Executive Director, Educational Council for Foreign Medical Graduates.

The Educational Council for Foreign Medical Graduates (ECFMG) has been carefully planned and established by the four organizations in the United States which are most closely concerned with the maintenance of high standards of medical education and service. These are the American Hospital Association, the American Medical Association, the Association of American Medical Colleges, and the Federation of State Medical Boards of the United States. The Council was established to make it possible for graduates of the 543 medical schools outside the United States who wish to further their training in American hospitals to obtain a basic certification in their own country which would serve the purpose of identifying them as qualified physicians once they enter the United States. Full functioning of the program is set for Jan. 1, 1960.

development is evidenced by the recent census taken by the Institute of International Education and the American Medical Association. It revealed that in the academic year 1956-1957, 6,741 foreign medical graduates from 88 countries were training in American hospitals, 4,753 as residents and 1,988 as interns.[1] Another thousand foreign medical graduates in our hospitals who were here permanently on immigration visas brought the total number of foreign medical graduates occupying internship or residency positions in our hospitals up to more than 7,700 in 1956 to 1957.

In view of these figures it is not surprising that the American Hospital Association, the American Medical Association, the Association of American Medical Colleges, and the Federation of State Medical Boards of the United States had been showing concern. With 7,700 foreign medical graduates in staff positions in our hospitals and more coming each year, some central agency should be set up to answer inquiries and serve as a source of authentic information in this rapidly developing field, and some means should be established for making it possible for graduates of the 543 medical schools outside the United States who wish to further their training in American hospitals to obtain a basic certification in their own country which would serve the purpose of identifying them as qualified physicians once they enter the United States.

After three years of planning by the Cooperating Committee on Graduates of Foreign Medical Schools with Dr. Donald G. Anderson, dean of the University of Rochester School of Medicine, acting as chairman, and Dr. Walter S. Wiggins, associate secretary of the A. M. A. Council on Medical Education and Hospitals, acting as secretary, the Educational Council for Foreign Medical Graduates (E. C. F. M. G.) was formally incorporated on May 14, 1956, with a Board of Trustees of 10. The board was constituted as follows: representing the American Hospital Association were Drs. Sarah H. Knutti and T. Stewart Hamilton; representing the American Medical Association were Drs. Edwin S. Hamilton and James R. Reuling; representing the Association of American Medical Colleges were Drs. J. Murray Kinsman and John McK. Mitchell; representing the Federation of State Medical Boards of the United States were Drs. M. H. Crabb and Dr. Elmer W. Schnoor; representing the public at large were Drs. W. C. Davison and Aims C. McGuinness. Dr. Kinsman was elected president, Dr. Edwin S. Hamilton vice-president, and Dr. Knutti treasurer. The financing of the first two years of operation was provided by a loan from the four sponsoring agencies and by grants from the Kellogg Foundation and the Rockefeller Foundation. Dr. Dean Smiley, formerly secretary of the Association of American Medical Colleges, was named executive director, and on Oct. 1, 1957, the E. C. F. M. G. formally opened its doors in offices at 1710 Orrington Ave., Evanston, Ill.

Informational Services

As an aid in the answering of letters of inquiry and in interviewing, the following printed materials have been developed and are available on request: (1) "Facts for Foreign Medical Graduates Planning Advanced Training in Hospitals of the United States," (2) fact sheet (describing the services of E. C. F. M. G.), (3) application form (for having credentials evaluated), (4) examination brochure (describing the American Medical Qualification examination), and (5) "Facts for Foreign Medical Graduates Contemplating Emigrating to the United States to Enter Practice."

Through the courtesy of the American Medical Association, the Association of American Medical Colleges, and the Graduate School of the University of Pennsylvania we have been supplied with distribution copies or given permission to reprint for distribution nine other brochures or leaflets of interest to selected groups of foreign medical graduates.

Evaluative Services

Credential evaluation is required of each candidate as the first step toward certification. Each foreign medical graduate is asked to submit photostated or certified copies of his chief educational credentials documenting the following facts: that he has had at least 18 years of formal education (elementary, secondary, collegiate, medical school, internship, or residency); that at least four of these years of training have been in a bona fide medical school recognized by the organized medical profession of the country in which the school is located and listed in the World Health Organization's "World Directory of Medical Schools"; and that he is licensed or eligible for licensure in the country in which he obtained his medical education.

Evaluation of the knowledge of medicine is determined by the American Medical Qualification Examination given twice each year, spring and autumn, in approximately 20 medical schools in the United States and in over 30 medical schools abroad. This is a 360-to-400-question, multiple-choice, objective-type examination, given in a morning and an afternoon session, all on one day. The questions for this examination are selected by the E. C. F. M. G.'s examinations committee of six

medical educators, from the pool of questions which have been used in examining large numbers of National Board candidates and smaller numbers of State Board candidates. About 35% of the questions are devoted to clinical medicine, 20% to surgery, 15% to pediatrics, 15% to obstetrics and gynecology, and 15% to the six basic sciences.

The evaluation of the command of English is accomplished as follows: At the beginning of the afternoon session of each examination, the proctor reads in English the history of a typical medical illness in the words of a patient. The candidates take such notes as they wish and then write a summary of that history in English as they would write it as the patient's case history in a hospital chart. This simple test checks the candidate's ability to understand spoken English and his ability to write English. His ability to read rapidly and comprehend written English is tested by the American Medical Qualification Examination itself. United States consuls abroad endeavor to limit the issuance of exchange visitor visas to foreign medical graduates who can speak understandable English.

Certification Services

The foreign medical graduate who has had his credentials successfully evaluated by the E. C. F. M. G. and passed its American Medical Qualification Examination and its test of proficiency in English is given an E. C. F. M. G. certificate. It is the hope of the four sponsoring agencies that the E. C. F. M. G. certificate will be accepted by hospitals, state boards of medical examiners, and specialty boards as evidence that the holder, though a graduate of a foreign medical school, is the possessor of medical knowledge comparable to that possessed by current graduates of our United States medical schools.

Report of Progress to Date

Letters of enquiry to the E. C. F. M. G. are rapidly increasing as it becomes known that informational materials are readily available. Nearly 300 foreign medical graduates had their credentials evaluated successfully and took the first American Medical Qualification Examination as given in 17 United States medical schools on March 25, 1958. Fifty-one per cent attained a score of 75% or more. Approximately 1,200 additional foreign medical graduates have applications in various stages of completion for the second American Medical Qualification Examination to be given Sept. 23, 1958, in approximately 20 United States medical schools and more than 30 medical schools in foreign countries.

Fourteen state boards of medical examiners and three specialty boards have acted to recognize the E. C. F. M. G. certificate based on its three-way appraisal of foreign medical graduates. The A. M. A. Council on Medical Education and Hospitals and the Association of American Medical Colleges have voted to withdraw their list of foreign medical schools (whose graduates were recommended for consideration on the same basis as graduates of American medical schools) on Jan. 1, 1960. After that date graduates of any medical schools outside the United States, Canada, and Puerto Rico will be expected to attain E. C. F. M. G. certification before applying for an exchange visitor visa and before being granted an appointment as an intern or a resident in a United States hospital. Many hospitals and one of our largest clinics are aiming to have all foreign medical graduates on their staffs certified by Jan. 1, 1960.

Summary

The Educational Council for Foreign Medical Graduates (E. C. F. M. G.) has been carefully planned and established by the four organizations in the United States which are most closely concerned with the maintenance of high standards of medical education and service. It has equipped itself to provide information to foreign medical graduates on request, to translate and evaluate foreign educational credentials, and to test the foreign medical graduate's command of English and his basic knowledge of medicine. It is rapidly completing arrangements whereby the English test and the American Medical Qualification Examination will be given in their own home country to foreign medical graduates whose credentials have been submitted and found meeting minimal requirements.

Every effort is being made to see that the informational phase precedes by a suitable time interval the evaluative and certifying phases of the program. With that important objective in mind, the E. C. F. M. G. has set the target date for the full functioning of the program (with all foreign medical graduates being properly certified before being granted United States exchange visitor or student visas and all foreign medical graduates on staffs of American hospitals being properly certified) as Jan. 1, 1960.

1710 Orrington Ave.

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LABORATORY ANALYSIS OF 1957-1958 INFLUENZA OUTBREAK (A/JAPAN) IN NEW YORK CITY

I. PRELIMINARY REPORT ON SEROEPIDEMIOLOGIC INVESTIGATION AND VARIANT A/JAPAN ISOLATE

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and
Olga Simonovic, B.A., New York

The biphasic nature of the 1957-1958 influenza epidemic and its contribution to the mortality during those years are revealed by data obtained in New York City. Hemagglutination-inhibition (HI) tests for Asian influenza were carried out from Sept. 16, 1957, to Feb. 21, 1958, on 2,719 serums negative for syphilis. The percentage of persons with HI antibodies positive to the NYC/1/57 influenza virus increased abruptly from a low figure to about 35% during October; the increase coincided with a first wave of deaths in excess of the normal seasonal expectation. The percentage of serologically positive persons showed a second abrupt increase in January, again simultaneous with an excessive mortality for the time of year. Between the two waves there was a period of quiescence of approximately two months. In January, 1958, a strain of virus was isolated that differed markedly from all previously tested strains, and three more strains of the new type were isolated in February. These facts suggest the possibility that older strains may become altered, or re-emerge after the lapse of years, or somehow recombine the antigens of earlier with those of more recent strains.

The influenza-pneumonia mortality data for New York City during the current (1957-1958) influenza outbreak can be divided so as to indicate the following four distinct phases: (1) a period of normalcy, which ended on Oct. 4, 1957; (2) a sharp rise between Oct. 4 and Oct. 18, 1957, decreasing to normal by Nov. 29; (3) a second period of normalcy between Nov. 29, 1957, and Jan. 10, 1958; and (4) a second rise in mortality starting Jan. 17, 1958, and extending through February (see figure). Similar influenza-pneumonia mortality curves have been reported for the whole United States, with no explanation available for the second rise in mortality.[1]

This paper will report seroepidemiologic results associating the increase in influenza-pneumonia mortality, including that of the second mortality wave, with the influenza virus. In addition, this preliminary report will describe the appearance of a variant of the Asian strain, coincident with the second rise in the mortality curve.

Method

Serum Collection.—Beginning on Sept. 16, and at weekly intervals thereafter, at least 300 negative serums per week were collected at random from the syphilis serology laboratory. The serums were stored in the deep-freeze unit until tested. The syphilis serology laboratory receives from 2,000 to 3,500 specimens per day. There is no obvious bias in the collection of these specimens with respect to the racial, geographical, or economic status of the patient. Tables 1 and 2 indicate the distribution of the serums used in this experiment, the reason for obtaining specimens in this laboratory (i. e., diagnosis or premarital or prenatal tests for syphilis), and age distribution of patients from whom serums were obtained.

Hemagglutination-Inhibition Test.—The Asian virus strain used in the hemagglutination-inhibition (HI) tests was the third (E3) or fourth (E4) egg passage of NYC/1/57 (typed as similar to A/Asian/Japan/305/57 by the Respiratory Disease Unit, Virus and Rickettsia Section, Communicable Disease Center, U. S. Public Health Service). The NYC/1/57 virus was isolated by this laboratory in August, 1957, from the throat washing of a New York City patient (Inga). The PR8, FM_1, and Lee viruses were old laboratory strains maintained by egg passage.

The standard pattern test was employed with use of four units of untreated virus.[2] The serums were treated with potassium periodate, inactivated at 56 C for 30 minutes and screen tested 1:8 (original dilution) for the NYC/1/57 virus and 1:16 (original dilution) for the PR8, FM_1, and Lee viruses. About 200 of the 300 individual specimens collected weekly were tested each week.

Results

An examination of the figure reveals the close relation between influenza-pneumonia mortality and the cumulative incidence of individuals with Asian

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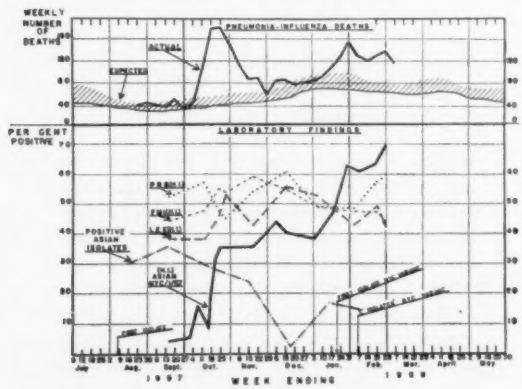
antibodies. The HI curve may be divided as follows into the same four phases as the mortality curve.

1. A low percentage of individuals with HI antibodies positive to the NYC/1/57 virus corresponding to the period of normalcy in the influenza-pneumonia mortality curve. During this period the virus began to disseminate throughout the New York City population. The virus was first recognized in New York City after its isolation from specimens obtained from foreign exchange students on Aug. 6, 1957, and by the end of August it was found in New York City residents. Between Sept. 16 and Oct. 4, about 4.5% of the serum collected in the serology laboratory reacted with the Asian virus.

2. A sharp rise to 35% of the population tested with the Asian strain, ending about Oct. 25. The similarity to the influenza-pneumonia mortality curve is evident (see figure). Worthy of mention is the fact that within a three-day period, Oct. 16-18,



Correlation of laboratory findings and pneumonia-influenza mortality in New York City, 1957-1958. Total numbers of monthly virus-isolation tests made from August, 1957, through February, 1958, were 30, 84, 217, 38, 84, 90, and 84 respectively; of these, 30.0, 35.7, 29.0, 24.0, 2.7, 17.7, and 15.5% were positive. For HI tests, about 200 individual serum specimens were tested each week.

the curve rose from 10 to 33% HI positives. The explosive nature of the outbreak during these three days is also evidenced by the sharp rise in the mortality curve.

3. A relatively normal period (Oct. 21 to Jan. 10) during which time there was little significant change in the percentage of individuals reacting to the Asian virus. The variation during this period rose only between 36 and 42%, showing the consistency of the method. It will be noted that the mortality curve quickly became normal and remained so until about Jan. 10.

4. The fourth phase of the influenza-pneumonia mortality curve is characterized by the second rise in number of deaths, starting about Jan. 10 and extending through the month of February. This second rise occurred not only in New York City but throughout the nation.

The second rise in influenza-pneumonia deaths coincided exactly with the increase in the percentage of individuals with positive reactions which rose from about 40% on Jan. 3 to 70% on Feb. 28.

TABLE 1.—*Hemagglutination-Inhibition Test for Asian Influenza on Routine Specimens Submitted to Syphilis Serology Laboratory Between Sept. 16, 1957, and Feb. 21, 1958, in New York City*

Reason for Submission of Specimen to Laboratory	Total*	Positive No.	Positive %
For diagnosis	1,380	489	35.4
Premarital test	781	296	37.9
Prenatal test	555	148	26.6
Total	2,716	933	34.4

* Total New York City population, ages 15 and over, is 5,969,000.

This second increase in both the mortality and HI antibody curves extended over a longer period than the initial rise which occurred in October.

It may be noted that throughout the testing period the FM_1, PR8, and Lee antibodies fluctuated between 40 and 60% without showing any definite trend. No significant statistical differences were found in the groups of serums submitted for either diagnosis or premarital tests for syphilis. There was a smaller percentage of positives in the prenatal group. It is of interest to note (table 2) that on final analysis all age groups were equally infected by the virus. Further study will be required to determine if this holds true for each period of the epidemic.

Virus Isolations

Results of throat washings and autopsy material submitted to the laboratory for influenza virus isolation may be seen in the figure. There is a close

TABLE 2.—*Age Distribution and Results (Asian Influenza) of Hemagglutination-Inhibition Test for Specimens Tested in Table 1*

Age	Total	Positive No.	Positive %
15-19	319	103	32.3
20-29	1,124	393	35.0
30-39	556	178	32.0
40-49	334	121	36.2
50-59	227	82	36.1
>60	147	56	38.0
No age given	12	3	...
Total	2,719	936	34.4

relationship between the percentage of positive isolates for Asian virus and the mortality and Asian HI curves.

From August through October, 1957, about 30% of the specimens submitted for virus isolation were positive. The proportion of positives dropped to

2.7% in December coincident with other evidence of disappearance of the epidemic disease. The proportion of positives rose to 18% with the second wave.

New York City Variant

During the period Jan. 10 through the month of February, in which the second rise took place in both the HI and mortality curves, a variant of the A/Japan virus was isolated from the throat washings of four individuals by the egg inoculation technique.

In table 3 it will be noted that strains isolated early in the epidemic had no detectable antigenic relationship to FM_1 and in this sense were typical of strains isolated elsewhere. On Jan. 21, 1958, a strain was isolated which differs markedly from all previously tested strains in that it cross-reacted strongly with FM_1 serums as well as showing the usual titer against anti-Asian serums. Three more strains of this new type were isolated between Feb. 6 and Feb. 28. However, the majority of strains (11 out of 15) isolated in the second wave were of the early type. The number of isolations is too small to accurately determine the prevalence of the new type in the second wave. (Since this paper was written, a similar finding was reported in a letter to the editor in *Virology*.[3])

When the new strains were tested against human serums the results were consistent with the antigenic pattern demonstrated in table 3. Serums which contained antibodies against either FM_1 alone or NYC/1/57 alone also reacted strongly within the new variant.

TABLE 3.—*Demonstration of Isolates Inhibited by Both A/Japan and FM_1 Antiserums (Chicken) Hemagglutination-Inhibition Test*

		Virus Type*														
		NYC/1/57						FM_1						Lee		
Isolate	Date Specimen Submitted to Laboratory	25	50	100	200	400	800	25	50	100	200	400	800	50	100	200
Patients	1/21/58	I	I	I	I	A	A	I	I	I	I	A	A	A	A	A
	2/ 6/58	I	I	I	I	A	A	I	I	I	I	A	A	A	A	A
	2/ 7/58	I	I	I	I	A	A	I	I	I	A	A	A	A	A	A
	2/ 7/58	I	I	I	I	A	A	I	I	I	I	A	A	A	A	A
Controls	2/ 5/58	I	I	I	I	A	A	A	A	A	A	A	A	A	A	A
	2/ 5/58	I	I	I	I	A	A	A	A	A	A	A	A	A	A	A
	2/ 5/58	I	I	I	I	A	A	A	A	A	A	A	A	A	A	A
NYC/1/57 Virus	...	I	I	I	I	A	A	A	A	A	A	A	A	...	...	...
FM_1 Virus	...	A	A	A	A	A	A	I	I	I	I	I	I	...	...	...

* Numbers represent reciprocals of original dilutions. I = inhibition; A = agglutination.

Of equal interest is the isolation of four new strains of influenza virus which possess antigens characteristic of the influenza strains which were prevalent from 1947 through 1956. This is all the more noticeable since the earlier and most widespread of the strains involved in the current epidemic did not possess these antigens. One possibility which should be considered is that of recombination between the antigens of the earlier and the more recent strains.

Summary

The influenza epidemic which was current throughout the United States in 1957 and 1958 was unusual in that the etiological agent contained antigens for which most people in the population had no antibodies. This provided a unique opportunity to measure the prevalence of the disease in the population by determination of the presence or absence of antibodies to the new virus in single serum specimens in large samples of the population. As shown in the figure, about 35% of individuals in New York City were infected by this new virus in the initial wave of the disease. This part of the epidemic was widely recognized both by the medical profession and by the public. The initial wave was followed by a period of quiescence for approximately two months, during which time no significant number of new infections occurred. After this there was a second sharp rise in the percentage of reacting individuals. Characteristically this second wave was also accompanied by an increase in the total mortality in New York City. The curve shown in the figure suggests that the excess mortality was a reflection of a widespread dissemination of the virus.

Mr. Louis Pincus, Bureau of Records and Statistics, Department of Health, gave statistical assistance in this study. All data concerning the influenza-pneumonia mortality were supplied by the Bureau of Records and Statistics.

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TEACHING OF UROLOGY TO MEDICAL STUDENTS

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Problems relating to the teaching of urology to medical students have received increasing attention at the most recent meetings of the American Urological Association. This interest is reflected in the report of its committee to study the status of the undergraduate teaching of urology in the medical schools.[1] The stimulus for this survey was provided by the wish of the association to determine whether there was any factual basis to justify the expressions of worried concern from some quarters to the effect that the undergraduate teaching of the surgical specialties, including urology, was being seriously compromised. The growing curriculum pressures generated by attempts to crowd more and more subject matter into the rigid four-year medical school course were considered primarily responsible. At some schools, sharp curtailments in the time allotted to the teaching of urology to medical students had been effected. Dark prophecies had been made that the undergraduate teaching of urology would soon become a matter of history.

After the completion of a detailed survey of the teaching curriculums of the medical schools and of the attitudes of the responsible administrative authorities and chiefs of the urologic services of these institutions, the committee reported that "at 87% of the institutions surveyed, the urological services still have reasonable opportunities to present creditable and well-balanced courses to undergraduates, despite recent concessions." It minimized the extent of the dangers and the threats that the undergraduate teaching of urology might soon become extinct. Of much greater concern to this fact-finding body was the character and quality of the teaching programs already in operation. What appeared to be most needed was not a greater share of the medical student's time but a more effective use of the time already devoted to urology in most of the curriculums. "The time has come for every urologic instructor to take critical inventory and concentrate on that subject matter which promises to be most useful to students, irrespective of their ultimate type of practice. It is also imperative that every urologic instructor exercise rational introspection regarding how well he has really accepted his teaching responsibilities and how conscientiously he has tried to provide the best instruction of which he is capable."

The threat to adequate instruction in urology in medical schools lies not so much in the depredations by curriculum-planning committees as they allot additional hours to rival courses as in lethargy and lack of perspective seen in occasional departments of urology. The best remedy is a balanced, meaningful course. The course here described is given in the third and fourth years. It consists of didactic lectures, ward-work with hospital inpatients and outpatients, demonstrations, and "spot seminars." The goals of the course must be explicitly delineated beforehand; the student's time must be conserved; and he must be impressed by a sense of forward movement of the program. The instructor's time likewise must be conserved. A detailed program which leaves nothing to chance, to faults of memory, or to later argument eliminates an enormous quantity of lost motion. This involves the early preparation of a "Urologic Instructor's Manual" and the development of teaching techniques that challenge the student's interest. Since teaching and research are both important, thought must be given to the need for recruiting to the urologic residency training program those students who have talent for either basic or clinical research. It appears that the most urgent need is not a greater share of the medical student's time but a more effective use of it by the departments concerned.

Survey Results

Principally, the results of the survey indicated that in many of the institutions studied there existed a need for reappraisal of the efforts being made to teach urology to medical students and for reorganization of the scope and content of such courses; the greatest threat to the continuation of effective undergraduate urologic instruction was not from predatory external forces but from a lack of perspective, lethargy, and indifference to the needs of students in those charged with the responsibility for their instruction in urology. The integrity of a well-balanced and meaningful course in urology was to be regarded as its best safeguard against depredation by curriculum-planning committees on the hunt for additional hours to supplement the time allottment of more vigorous programs.

Early in its study, the committee recognized the difficulties involved in attempting a comparative appraisal of the teaching methods and programs

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now in use in American medical schools. These were too varied and too full of intangibles to permit statistical break-down and analysis. For the same reasons, it is almost impossible to develop even a useful idealized conception of a teaching program in urology adaptable to all medical schools. Significant differences in the sizes of classes, the clinical facilities, the diversification, volume, and character of the clinical material available to the uses of the teaching program, and the availability of capable urologists willing to spare the time from their private practices for teaching, are all factors that modify the usefulness of a pretailored program in any one medical school. Of even more fundamental importance are the variations in the basic philosophies regarding the objectives of the undergraduate teaching of this surgical specialty subscribed to by the responsible administrative authorities and the surgical department chairmen concerned.

To overcome the handicaps imposed by these variables and complexities, the committee suggested the development of a forum of some type in which those interested in and concerned with the problems of urologic education at the undergraduate level might meet for a mutually beneficial interchange of ideas. It proposed that a definite allocation of time be made at the annual meetings of the American Urological Association and that this be devoted to either a panel discussion or a symposium on the subject of undergraduate urologic teaching "where authoritative opinions could be aired, teaching methods compared, and projects for the future proposed." This suggestion was responsible for the preparation of an exhibit shown at the 1957 Annual Meeting of the American Urological Association entitled "The Undergraduate Teaching Program in Urology at the Baylor University College of Medicine." What follows is an expository description of the program based on the material contained in this exhibit.

In order to permit even admittedly superficial comparisons, some background is necessary. The Baylor University College of Medicine is a privately supported medical school located in Houston, Texas, an urban community of about one million people. Both the medical school and the Texas Medical Center of which it is a part have been located in Houston less than 20 years. It has problems in common with many young medical schools, and the traditions that develop with age and the support that accrues from a large body of loyal and devoted alumni have yet to develop fully. Four of the eight major hospitals (one a city-county hospital for indigents and another a 1,500-bed Veterans Administration hospital) are directly affiliated with the school, and the urologic services of two of the others are indirectly affiliated through an agreement between Baylor and the Postgraduate School of the University of Texas. At last count, there were 45 urologists in the Houston area, and of these, more than 50% are on the clinical faculty in urology of the medical school. All are either certified or eligible for certification by the American Board of Urology, at least the latter being a prerequisite for appointment to the faculty. Within this last year, a full-time instructor who had just completed his residency was appointed to the faculty.

Those who have participated in the program to be described concede its effectiveness. For two successive years, the graduating classes have designated their course in urology as the best organized, most effectively presented, and best taught course of the clinical years. For two successive years, the senior classes have awarded a bronze plaque to a urologic instructor as the so-called doctor of the year. Ten per cent of the seniors of the most recent graduating class professed sufficient interest in urologic residency training to have indicated this choice in the class yearbook. The instructors have been uniformly enthusiastic since the program has been designed to permit the individual instructor to make his contribution to the teaching effort with a minimum waste of time. A feeling of mutual respect pervades all of the sessions and has been most rewarding to those responsible for the planning of the program. Finally, the chairman of the department of surgery has responded to suggestions of the last senior class that the teaching program be reinforced at the third year level for increased effectiveness. At present, urologic instruction in the junior year consists of eight didactic lectures followed by an additional 16 hours of ward-work with hospital inpatients, demonstrations, and "spot seminars." Earlier, this instruction had consisted only of eight disjointed didactic lectures by as many different lecturers presented during one quarter.

Fundamental Objectives

A precise delineation of goals is indispensable in the development of a teaching program such as the one to be described, since all subsequent efforts are directed toward their attainment. The basic goal is to provide the medical student with an understanding of the principles of urology that are thought essential to his development as a well-rounded physician: it is not to make of him a physician who is either a competent urologist or a general practitioner capable of dealing competently with all urologic problems. It is recognized that for most medical students, their contact with urology during the clinical years in medical school may well be all they will have with the specialty before entering the private practice of medicine. Despite this, emphasis is placed on the orientation of the student in urologic disease mechanisms, and the distinction between teaching and training is clearly drawn. Training is a graduate discipline: it

is an extension of the educational process to the residency level. Here the resident, because of his special interest, not only broadens his base of understanding of the principles of urology but acquires familiarity, dexterity, and competence in the techniques peculiar to urology.

A second objective is the most judicious employment of the time allotted to the division of urology for its teaching effort. If this is done, the student soon becomes aware of the precision with which the program has been planned and of its resultant sense of forward movement. Similarly, the instructor wastes no time, since his teaching assignment is clearly demarcated although no restrictions are placed on his ingenuity as a teacher within the boundaries of his assignment. In consequence of this, absenteeism on the part of both students and faculty alike has been remarkably low, an added tribute. Our experience has been that a carefully planned program carried forward by instructors who are completely familiar with its over-all objectives as well as their individual responsibilities to its successful implementation results in a student body that responds with interest and enthusiasm.

A third consideration is that of keeping the demands on the individual instructor's time at the minimum consistent with first-rate performance. This is especially important since the introduction of the four-quarter system, which makes necessary the repetition of the teaching effort at least four times during the academic year. In this connection, it is appropriate to quote again from the report of the committee to study the status of the undergraduate teaching of urology in the medical schools:[1] "Since urological teaching in 65% of the schools is still dependent on part-time and volunteer instructors, it seems naive to insist upon changes that demand more and more time of those individuals who find it difficult to do justice to prevailing programs." Here again, it has been our experience that a well-balanced and effective teaching program that utilizes the services of the teaching staff to the best possible advantage actually reduces the demands made upon the time of the volunteer instructors.

Finally, since teaching is only one of the functions of a division of urology, some thought must be given to the need for recruiting to the urologic residency training programs those students who show significant promise in basic research or as future clinician-investigators. If the educational experiences of the students in undergraduate urology have been made meaningful, there need be no shortage of candidates for vacancies in the residency training programs of the institutions at which these experiences were provided, nor need these vacancies be filled by candidates with less than adequate basic preparation.

The Urologic Instructor's Manual

Our experience has indicated the following lines of approach in the development of an effective teaching program for medical students. First is the projection of a clear picture of the program as a whole, with the objectives kept always in view. Second is the delineation in as much detail as possible of the component parts of the program to insure its smooth and efficient operation. Third, and of paramount importance, is committing the entire detailed program to writing, leaving nothing to chance, to faults of memory, and to later argument. Through the medium of a written program, what may amount to an enormous quantity of lost motion is eliminated. Both the students and the instructors know when and where they are to meet and what the subject matter of the session is to be by referring to their printed schedules. If preliminary preparation of an assignment is required of the student in the interest of making the class and group sessions more meaningful, this is a matter of written record with which the student has been provided before the course begins. Knowing well in advance what the subject is to be, the instructor arrives "primed" for his class. The urologic resident, as a member of the teaching faculty, knows well in advance what teaching aids and clinical materials will be required by the instructor and is charged by the instructor with the responsibility for providing them. Overlap and repetition are avoided: duplication of effort is eliminated. The student is soon aware that preventable absences are not without cost to him, and absenteeism is no longer the problem it used to be when the student felt that he was getting little in return for his time.

At least one month before the beginning of the school year, the division of urology prepares a multigraphed "Urologic Instructor's Manual," which is distributed to all members of the teaching faculty. This is enclosed in a sturdy and easily distinguishable binder that is appropriately labeled to prevent its being accidentally discarded with the voluminous pharmaceutical literature that arrives daily in the doctor's mail. The first sheet in the manual is a covering letter that summarizes objectively the teaching efforts of the division of urology for the year just closed and the program changes together with the reasons for such changes for the academic year about to begin. The remainder of the manual contains detailed faculty assignments with descriptive course outlines, student schedules, student section lists, and all other information considered pertinent. Not only is this effort worthwhile, it is considered to be the bone and sinew that holds the program together and gives it a sense of direction.

Instructors with major assignments, meeting with groups of 20 or more students for didactic lectures or conferences, are provided with pictorial rosters of the students assigned to them, permitting quick

identification of the student from his photograph. These are usually made up for other reasons by the school's department of visual education and are readily procurable. They are of real value from the viewpoint of student psychology, since the student is no longer "the second man from the left in the third row." He is now an individual whose identity is known and whose performance becomes intensely personal. The student reacts favorably, too, to what he believes to be a manifestation of personal interest.

Provided with such a manual, the instructor knows at least one month in advance what the total teaching effort is to be and that his own assignment is an important integral part of that effort. A significant sense of individual responsibility is inspired. During the past two years, instructors have gone to considerable effort to avoid failures to meet with their classes, although the procedure by which the instructor can obtain a substitute is clearly stipulated. The effects produced establishes a beneficial cycle: the students, responding with interest and enthusiasm, stimulate the instructor to even finer performance.

Student Performance and Examinations

Precise mathematical grading for the evaluation of student accomplishment seems to serve little purpose at the senior year level. The compilation of grades for whatever reasons a grade average is required is usually made at the end of the junior year and has since served its purpose. Although the seniors are quizzed frequently at weekly sessions and are given both a written final examination as well as an oral final quiz, these are intended primarily as teaching exercises. The so-called written final examination is truly more of an exercise and consists of 200 questions of the true-or-false, fill-in, or multiple-choice types. These are multigraphed and distributed to the seniors in brochure form at the last session of the quarter in which the work in urology has been completed. The students are allowed to take the examination questions home for a period of 72 hours, and they are permitted to refer to any textbook or class notes for help in answering the questions. Only one stipulation is made: that each student sign a statement on the face-sheet of the exercise to the effect that he has completed it solely as a result of his own efforts. It is pointed out that a group effort serves only to defeat or minimize the principal aim of the examination, which is self-education.

Each of these questions incorporates a point considered important to the urologic orientation of the physician. Each is thought to be a pinch-graft from which the student extends his knowledge of urology. The avidity with which medical students look for information in capsule form, or as "nuggets" or "pearls," as they are popularly termed, is well known.

The completed examinations, when returned, are graded quickly by a secretary employing a master copy on which acceptable answers are marked. They are subsequently used as the basis for examination of the students individually during the final oral quiz. The final oral examinations are two hours long and are given to groups of five or six students on an evening some weeks after completion of the course. Since the class is composed of 16 such groups, an additional 32 hours is required of the teaching staff. This is considered a pleasant assignment by most members of the faculty.

At this oral examination, the emphasis remains on teaching, and not on the evaluation of the students for accomplishment or retentiveness. Gross specimens demonstrating readily apparent diseases of the genitourinary organs, borrowed from the department of pathology, and interesting urologic roentgenograms showing classic disease patterns are also used for the purposes of this examination. Hypothetical case presentations are used to develop in the student the capacity for understanding the genesis and mechanisms of urologic disease. In such cases, the correct diagnosis is only part of the answer: the student must be able to justify his diagnosis through analysis of the given symptoms and findings. Students have not found the oral examination to be a traumatic experience. On the contrary, these sessions rarely end without a spontaneous expression of appreciation from the students for the interest and effort of the instructors.

The students' interest in clinical urology is maintained throughout the junior and senior years by the annual award of two prizes that have been established by members of the teaching faculty to honor distinguished urologists. The first is given to that senior student demonstrating the greatest aptitude for the interpretation of urologic roentgenograms; the second prize, to that senior who during the course of his clinical years first makes the diagnosis of early carcinoma of the prostate, subsequently proved, by rectal-digital palpation. In both instances, the prizes are standard sets of urologic reference books.

Undergraduate Urologic Teaching and Research and Clinical Investigation

Teaching and clinical investigation and research are two of the vital primary functions of the medical school. The two have an immediate reciprocal relationship and soon become inextricably intertwined. The inquiring minds of properly stimulated students, fresh and possibly naïve in their approaches to new spheres of knowledge, are a constant challenge to the validity of traditionally accepted ideas, methods, and techniques. The conscientious teacher, stimulated to a continuing critical reexamination of his subject matter, inevitably finds himself in blind alleys as a result of the sig-

nificant gaps in his knowledge of which he now becomes aware. The truism that "he who teaches also learns" tends to vitiate the criticism that a program such as has been described has little value because it is stereotyped, for the good teacher finds his material in a state of constant change. If he has an attitude of critical open-mindedness, and possesses exacting habits of thought, clear-cut educational ideals, and a genuine enthusiasm for learning, he assiduously strives to find rational substitutes for empiricism and dogma. This very frequently leads him to productive investigation and continuing scholarship, so necessary to the vigor of any field of medicine.

The medical student is similarly stimulated by the good teacher, and the gadfly in today's senior class may tomorrow be one of the most prolific of the investigators in urology if given the proper encouragement. It is the duty of the good teacher to nurture in his students the restless spirit of inquiry that seeks to find answers where as yet there are none. A well-ordered undergraduate teaching program is basically necessary to the development of this spirit in the medical student.

Summary and Conclusions

In its effort to determine the degree to which the continued undergraduate teaching of urology in medical schools was being threatened, as had been claimed in some quarters, the committee to study the status of the undergraduate teaching of urology in the medical schools of the American Urological Association conducted an intensive survey.[1] Its findings indicated that the greatest dangers to the present status of urologic instruction in the curriculum were to be found within the teaching programs of the specialty of many of the institutions studied. Reorganization for more effective utilization of the time allotted and of the services of the voluntary teaching staff and reappraisal of the scope and content of the courses as presently being taught were recommended. The urologic teaching program for the medical students of the Baylor University College of Medicine was developed in response to these suggestions and has been in operation for more than two years. Its effectiveness is measurable in some degree by the interest expressed by 10% of the last senior class in residency training in urology following the internship. Precise programming has resulted in a well-ordered teaching effort that has employed the time allotted in the curriculum to the study of this surgical specialty to the best possible advantage and has reduced the demands upon the limited time of the members of the voluntary teaching faculty. Its development and its effectiveness are thought to be contingent upon the projection of a clear picture of the program as a whole, bearing in mind the objectives to be attained, delineation in as much detail as possible of the component parts of the program to insure its smooth and efficient operation, and commitment of the entire program, in detail, to writing in the "Urologic Instructor's Manual," which is distributed to the individual members of the faculty well in advance of the beginning of the academic year.

1813 the Medical Towers (25).

Reference

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MOUTH DISORDERS IN THE AGED.—The care of chronic mouth disorders in the loosely defined group referred to as the aged has often been one of shifting responsibility to either the dental profession or the otolaryngologist. . . . Every patient complaining over a considerable period of time of a sore mouth and burning tongue merits at least a complete differential blood count and urine examination to apprehend pernicious anemia, leukemia, syphilis or diabetes, if present. Less often miliary gumma may indicate a complete serological survey and a single lesion a biopsy. Most of the conditions are more annoying and disturbing than serious. If the patient's complaints are not given thorough consideration but are just glossed over with, "There's really nothing wrong with your mouth," he can become a mental problem. One of the most common and distressing complaints is the "burning tongue." . . . Vitamin deficiencies may produce not only a burning tongue but also a general stomatitis. . . . Geographic tongue is more frightening to the patient than organically injurious. . . . The scrotal tongue is a harmless, deeply fissured tongue. . . . Senescence also presents changes in the oral cavity comparable to those observed in other tissues in the body. . . . The therapy suggested has been successful in the hands of the writer and is presented for consideration. The geriatric patient requires sympathetic understanding and patience.—C. M. Epsteen, M.D., D.D.S., Chronic Refractory Mouth Disorders in the Aged, Symposium on Difficult Office Problems, *The Medical Clinics of North America*, March, 1958.

REPORT OF LARGE-SCALE FIELD TRIAL OF JET INJECTION IN IMMUNIZATION FOR INFLUENZA

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The need of giving hypodermic injections to thousands of people became acute during a service-wide campaign for immunization against influenza. Experience with 20,145 injections by a jet method is here described. It involves the use of a machine capable of generating pressures between 135 and 150 atmospheres (2,000 to 2,200 lb. per square inch). For the injection the tip of the jet nozzle is held firmly against the skin over the relaxed deltoid muscle. The machine is completely mobile except that it requires a source of electricity. As many as 734 injections were given per hour. Problems of technique were readily solved, and asepsis was easily maintained. The antibody responses of 52 subjects who received influenza vaccine by jet injection were compared with the responses of 27 subjects inoculated by needle and syringe, and there was no significant difference in the results. The new technique made it possible to give injections to large numbers of people rapidly, safely, simply, and with minimal psychological trauma.

When the military services adopted a service-wide influenza immunization campaign, the magnitude of the problem presented at a large naval air station in sterilizing individual syringes and needles for more than 10,000 individuals assumed staggering proportions from the medical manpower, man-hours, and available equipment standpoint. Accordingly, arrangements were made and approved by both services to utilize the Presso jet machine and to conduct the largest scale field trial of jet injections yet attempted. We conducted the field trial at the Naval Air Station, Norfolk, Va., with the two available machines from the Walter Reed Army Medical Research Institute.

The machine is essentially a two-stage hydraulic system. The first stage consists of an electric hydraulic pump which forces fluid at pressures of 2,000 to 2,200 lb. per square inch into a hydraulic cylinder in the handle of the gun. This force cocks a heavy spring which transmits its energy into the second hydraulic system, which is the vaccine system. The dual hydraulic system and spring combination is engineered to avoid dangers of contamination of the injected material with hydraulic fluid. In the instrument used, the vaccine system can be removed easily for sterilization. The unit can then be reassembled in sterile condition in approximately 90 seconds. The equipment is completely mobile and is dependent for operation solely on the availability of electricity. The machine is cocked in approximately three and one-half seconds by pressure on the bottom trigger, and the tip of the jet nozzle is then held firmly against the relaxed muscle of the deltoid. The vaccine is injected in four-tenths of a second by squeezing on the top or firing trigger.

Our experience in 20,145 injections in 1955 and 1956 has substantiated the concept that the use of the jet inoculation technique with a multiple-dose unit is feasible and extremely effective as a method of mass inoculation. Indeed, in our series the primary difficulty was to process recording data, prepare the skin, and then present the subjects to the operator rapidly enough to effect complete utilization of the machine.

Table 1 indicates the record of the number of inoculations per hour. It will be observed that the rate of injections increased somewhat with familiarity of the operators with the machines in 1955, and in 1956 mechanical improvements of the instrument markedly increased the potential injection rate per hour.

From the Medical Department, Naval Air Station, Norfolk, Va., and Walter Reed Army Institute of Research, Washington, D. C.

Procedure

After a short period of instruction, the inoculations were administered by personnel previously untrained in jet-injection technique. The "shots" were administered to personnel in hangars, in quonset huts, and aboard ships; the only equipment necessary was the jet units, vaccine, an instrument sterilizer, and acetone-saturated cotton balls. The inoculation team consisted of one medical officer, two hospital corpsmen, and two nontechnical assistants. Sterilization of the vaccine system was effected and the equipment set up within one hour prior to beginning inoculations. Essential data for recording was written by the subject on a 3-by-5-in. card and presented to a member of the team at the head of the line of subjects. The line was supervised by a hospital corpsman who cleansed the skin over the deltoid area and vectored the subjects to

the machine operator. All personnel were observed by a trained hospital corpsman for bleeding after the inoculation and instructed to apply pressure if bleeding should ensue. Sufficient time was allowed between skin cleansing and the injection to permit drying of the skin.

TABLE 1.—*Inoculation Data**

	Group	No. Injected	Guns Used, No.	Time, Hr.	Injections/Hr.
1955	1	547	2	1	273
	2	638	2	1	319
	3	1,154	2	1 5/6	320
1956	4	197	1	1/3	587
	5	1,236	1	2 1/3	587
	6	734	1	1	734

* The volume injected was 1 ml. in all cases.

The vaccine, a preparation of formalinized extra-embryonic chick embryo fluid, contained equal parts of Swine and FM1 strain of influenza A and the Great Lakes strain of influenza B.

Skin preparation at the onset of the series consisted of cleansing the skin over the muscular area of the deltoid with cotton ball sponges saturated with ether. The rapid evaporation of the ether was advantageous in that it presented a dry area of skin to the machine operator. It proved to be disadvantageous in that the sponges dried very rapidly when prepared in large numbers, the fumes from the ether presented a fire hazard in confined spaces, particularly in shipboard areas, and it was drying to the skin of the assistant assigned the detail of skin preparations. The majority of skin preparation was done with acetone which evaporated rapidly enough to permit drying of the skin and yet did not present as dangerous a fire hazard as ether fumes. It also was less productive of skin-drying of the assistant's hands.

One hospitalman member of the team was utilized to draw blood samples on one man out of each 50 to provide immunological data which will be presented elsewhere in this paper. A preinoculation blood sample and a three-week postinoculation blood sample was thus obtained on 2% of the subjects, and immunization titers were run to demonstrate effectiveness of the jet gun from this standpoint.

Recording of data into the individual health record of the subjects was accomplished after the series was completed with use of the 3-by-5 cards which were collected in the line. The team member to whom these slips were given inquired as to the subject's sensitivity to eggs, feathers, or chickens to avoid inoculating those individuals known to have a definite allergic manifestation.

Mechanical Difficulties

A detailed description of the construction and operation of the machine used was presented by Warren and others in 1955.[1] A photograph of the disassembled injection handle of the gun is shown in the figure.

The high hydraulic pressures encountered throughout the unit will produce leaks in either the oil or vaccine systems with minor defects in the hydraulic "O" rings. Defects developing in the "O" rings in the oil hydraulic system are the most difficult to remedy because replacement of the defective ring necessitates a press or "C" clamp to retain the high spring tension during removal of the retaining screws and removal of the spring in order to obtain access to the hydraulic cylinder. These "O" rings can be replaced in a unit in about an hour. Minor leaks occur in the neoprene "O" rings in the two trigger assemblies and could be replaced in about 10 minutes. None of the above repairs required resterilization of the vaccine systems. Leaks which occurred in the "front" and "rear" vaccine "O" rings, requiring replacement of the "O" rings, required resterilization of the vaccine system prior to resuming activity. These rings could be replaced in a few seconds, and the unit was resterilized, reassembled, and ready for use within 10 minutes. This explains the need for a ready boiling sterilizer to minimize delays. Another mechanical difficulty encountered is a plugged jet nozzle. This will be encountered with increasing frequency as the size of the aggregate particles in the injected solution approach the diameter of the jet nozzle or 0.005 in. The plugged jet nozzle can be removed under aseptic conditions by removal of the nose assembly, removing the defective nozzle with an alcohol impregnated sponge. A previously autoclaved jet nozzle is then replaced under aseptic technique, the nose assembly replaced, and operation resumed. This latter operation can be completed in 60 to 90 seconds. A supply of spare jet nozzles in a sterile glass container was always kept available. There is one area in which leaks may develop that will suspend operations and require considerable equipment to effect repair. The failure of the ball check valve in the forward end of the plunger system to seat properly causes the gun to deliver less than the measured dosage and requires a metal lathe to gain access to the ball valve. Another ball valve is located at the rear of the plunger assembly and, if improper seating occurs, will allow vaccine to be returned to the reservoir on each injection. How-

Disassembled injection handle of jet injector.

ever, this latter valve is easily accessible. These latter two mechanical failures are the most difficult of perception and made it mandatory to keep a rough count of the number of "shots" per vial of vaccine in order to obtain data regarding accuracy of dosage administered.

The diagnosis and correction of the mechanical difficulties which may occur is relatively simple. First, leak of vaccine from the tip of the gun during firing, a defect which may occur once in 3,000 to 7,000 shots, is due to a worn front "O" ring. This ring is readily replaced, but the procedure usually requires resterilization of the vaccine system.

Second, leakage of hydraulic fluid from the dosage calibration window indicates an internal "O" ring defect. This is a rare occurrence, and replacement of this component can be done in approximately 15 minutes. Third, failure to prime or loss of priming during operation is due to plugged ventilation of vaccine supply needles (which must be cleaned or replaced) or to rear "O" ring leakage. The latter occurs but rarely, in less than 8,000 to 10,000 shots, and is remedied by replacing the "O" ring.

Fourth, failure to obtain penetration may be due to loss of priming or to a plugged jet nozzle. The nozzles can be promptly replaced aseptically. Self-cocking of the gun or failure to remain cocked indicates a defective trigger "O" ring which must be replaced.

Fifth, an operational error may arise if injections are made beyond the emptying of the vaccine vial. In this event, foam will appear on the skin and the gum must be reprimed with vaccine. It is impossible to inject air.

Clinical evaluation of the jet injection technique was assessed by observation for bleeding from the site of injection, pain of injection, and acceptability by patients, and special note was made of the environmental effects on penetration and the relationship of race and muscularity of the subject on penetration.

Warren and co-workers reports as a disadvantage of the method the high incidence of minor bleeding from the site of injection in 15% of subjects inoculated. In our series there was an incidence of only 2-3% of bleeding of any consequence. Routinely with the jet-injection technique, within five seconds after inoculation there is a slight droplet of ooze of vaccinosanguinous material from the site of injection. It is admitted that the amount of bleeding in this 2-3% is slightly more extensive than that seen with needle inoculations and that the bleeding is more likely to continue for a longer period of time, but close scrutiny of the subjects for bleeding after inoculation and a minimal amount of pressure applied by the subject was an adequate measure for control in all instances. Unfortunately, the magnitude of the program prohibited close observation for ecchymosis, but no subcutaneous hematomas of sufficient size to require the subject to seek medical care were seen during the course of 20,145 inoculations.

A disadvantage is possible laceration of the skin [2] if the nozzle moves during the inoculation cycle. This was observed in only four cases in our series. The lacerations were not completely through the skin, were less than 0.25 in. in length, and required no special therapy other than application of an adhesive bandage. Injury due to accidental misfire occurred in this series when one operator succeeded in forming an epidermal wheal 1 cm. wide the length of his finger. No untoward effects other than the immediate pain of the vaccine appeared in this case during several days' observation. No other accidents were attributed to this method of administration. No infections were observed to develop at injection site in any recipients of jet injection.

Degree and intensity of pain unfortunately are most difficult to analyze from the patient standpoint, and the evaluation of the machine from the pain standpoint was further impeded by the painful reaction from the vaccine. The vaccine used was a suspension of formalin-killed organisms, and subjective response to the pain of the injected formalin did not permit an accurate evaluation of the injector because, being new, all symptoms, to the layman, were attributed to the method of administration and not to the vaccine. It is important to note, however, that complaints of pain were never registered for approximately 20-30 seconds after the inoculation. Admittedly, the injection with the jet technique is not a completely painless procedure, but pain is definitely less than that experienced with the needle and syringe method. Many subjects remarked that the pain was similar to a single pin prick felt in the multiple pressure method of smallpox vaccinations. In one shipboard trial, 20 of the subjects who experienced excessive pain volunteered to take a jet injection with isotonic sodium chloride solution; all uniformly admitted no pain from this injection. As a matter of fact, one subject, when injected with saline solution, insisted that the machine was not operating properly until he was shown four droplets of vaccinosanguinous fluid exuding from the areas in which four separate 1-cc. doses of the saline solution had been injected.

In the study of apprehension, it is interesting to note that there were no episodes of syncope prior to receipt of the inoculations in the entire series of 20,145 inoculations. This is a most important point from the standpoint of the psychological response and patient-acceptability to jet injection. The epidemicity of fainting in an inoculation line is a well-known hazard to all who have participated in mass immunization programs. In this series, there were but two episodes of syncope in the immediate post-inoculation period. One instance was of an enlisted WAVE who was menstruating at the time, which may have contributed to her circulatory

instability. The absence of needles to penetrate the skin with the jet injection method appears to be definitely reassuring to juveniles and adults as well.

At the beginning of the test, there was definite apprehension that environmental conditions would affect the percentage of good penetrations and cause a greater number of dermal wheals. It was assumed that the tenseness of skin produced by the chilly atmosphere of a large aircraft hangar would interfere with penetration, but this was definitely disproved. If one single factor is to be pointed out which affects penetration, it is the state of dryness of skin. Apparently the changes in surface tension brought about by a wet skin adversely affect penetration. In our series, on the first day we observed epidermal wheals among 10-15% of the first 300 subjects until it was discovered quite by accident that the incidence of wheals was less when the area to be injected was perfectly dry. With a dry skin area the incidence of epidermal wheals is less than 1%.

It has been mentioned that failure of penetration is more common in heavily muscled men. In our experience, a prerequisite of good penetration is a completely relaxed extremity, and in patients in whom complete muscle relaxation could be obtained no differences in penetration were noted, even in heavily muscled individuals. As our program progressed and as this effect became apparent, it became routine to insist on complete relaxation and a completely dry arm. Using these measures, as many as 350 inoculations were given without a failure of penetration. No differences were noted in age or in the various races and nationalities encountered in our series, which included Caucasian, Negroid, Malayan, Polynesian, and Mongolian.

TABLE 2.—*Antibody Response to Jet-Injected Influenza Vaccine in 52 Adult Males (Nov., 1955)**

Response		Method of Inoculation			
		Jet		Needle	
		No.	%	No.	%
Titer rise		38	73	8	29
No rise in titer		14	27	19	71
Total		52		27	
Vaccine:	FM1—E5M54	⅓			
	Swine—M38E30	⅓			
	Great Lakes—E4M10E10	⅓			

* Chick cell agglutination titer of vaccine, 750. Equal parts of Swine and FM1 strain of A virus and Great Lakes strain of B virus were used.

In any immunization procedure, antibody response must be demonstrable if the technique is to be regarded as effective. Earlier studies [3] have shown that certain vaccines, notably typhoid, are antigenically as effective when jet injected as they are with conventional needle injection. A total of 52 preinoculation and three-week postinoculation serum pairs were collected at random from jet-inoculated personnel, and 27 individuals who received the vaccine by needle and syringe were similarly bled for comparison of antibody formation. Table 2 demonstrates antibody titer comparison between serums from jet and needle injected individuals.

Out of 52 jet-injected individuals, 38 (73%) showed a titer rise to one or more of the component antigens in the vaccine, while 14 (27%) showed no rise. In the needle-vaccinated controls, the proportion of the individuals with rises in titer were lower than that for jet injection.

Of the 38 individuals with rises in titer after jet injection of vaccine, 30 had a fourfold or greater rise in titer. The control serum from needle-injected men showed a lower order of response. It may be concluded that the jet injection technique produces an immune response at least equivalent to that of the conventional needle and syringe.

Summary and Conclusions

A recently developed instrument for rapid semiautomatic, multiple dose mass injection has been field-tested with the two largest groups as yet undertaken. Immunological data have been collected to demonstrate a comparable response to vaccine received with jet injection to that with needle and syringe injection. The jet-injection technique is of potential value in large-scale immunization programs in military and civilian disaster and potentially in modern warfare in the treatment of mass casualties. Jet injection of influenza vaccine induces antibody response favorably comparable to that produced by needle and syringe injection.

The advantages of the injector unit include the following factors. The equipment can be used in any location, is easily transportable, and depends solely upon the availability of electricity, which could be supplied by a portable generator for field use. Sterilization facilities and amounts of equipment for care of masses of people are minimal. The dangers of transmittal of hepatitis, malaria, and syphilis are absent. This is of particular importance in hepatitis. Large groups of subjects may be injected rapidly, safely, simply, and relatively painlessly with minimal psychological trauma and by relatively untrained personnel. Maintenance of equipment is quite feasible with a minimal amount of training.

However, the injected material must be nonviscous and in aqueous solution, and the size of the aggregate particles must be less than 0.005 in. in diameter. The machine is still in the development stage.

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EVALUATION OF A PROGRAM TO IMPROVE TEACHING OF CANCER IN MEDICAL SCHOOLS

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This is an analysis of the impact and results of a teaching program inaugurated in 1947 for undergraduate medical students, to stimulate interest and increase the knowledge of cancer. This report is based on a review of all grant applications to the United States Public Health Service and on questionnaires sent to senior faculty members not directly connected with the programs, to medical students, and to faculty members directly in charge of the programs, designated as "coordinators of cancer teaching."

After a conference of the National Advisory Cancer Council in 1946, a committee on cancer, composed of 22 deans and professors from 14 medical schools and other representatives, was appointed for the purpose of improving methods of teaching cancer in medical schools.[1] After a meeting on Nov. 7, 1946, the committee made the following recommendations: (1) that the dean and faculty of each medical school be asked to review the present method of teaching cancer in their school; (2) that if an integrated course in cancer is not already given, the school consider introducing a program of instruction, preferably in the senior year, in which the pathology, physiology, and biochemistry of cancer are correlated with a weekly clinic devoted to the presentation of cancer of various sites; (3) that they undertake to stimulate cancer research in their school, since it is recognized that research improves teaching and stimulates student interest; (4) that copies of this report be made available to all medical schools and others interested in medical education in cancer; and (5) that the United States Public Health Service consider ways and means of providing necessary financial assistance to interested medical schools prepared to undertake an integrated program of teaching cancer; that the Public Health Service also try to interest other agencies in giving financial support to such a program. A subsidy of approximately $10,000 to $25,000 annually for a period of years was suggested. The amount to be granted to an individual school would depend upon the demonstrated need. This subsidy might not be adequate to cover the entire cost of the program in many institutions. However, it was believed that in such event the school sufficiently interested might secure additional funds from other sources.

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The teaching program to stimulate interest and increase the knowledge of cancer has fulfilled the following objectives: new methods of analysis of medical teaching effectiveness systematically explored on a national basis in order to attempt to document quantitatively the results of the cancer teaching program; improved cancer learning as evidenced by the results of the annual examination on the subject of cancer learning, from 1949-1957; additional teaching personnel whose main interest is in cancer added to the medical school faculty; the establishment of new research facilities; aid to other existing laboratories with expansion of their facilities; increased postgraduate instruction in neoplastic diseases; the establishment of student fellowships; and more people made aware of the magnitude of cancer and its impact on the human race.

In June of 1947, the National Cancer Institute, with the approval of Congress, undertook a program of grants to coordinate the teaching of cancer in approved medical schools. The intent of the program was not to train specialists in oncology but rather to interest all students of medicine in acquiring a knowledge of cancer and learning known and new techniques of diagnosis and treatment. This program has been reviewed on several occasions,[2] but at the 1956 meeting of the cancer coordinators a committee of coordinators was appointed to review the program and present the results of the study to the general medical profession in THE JOURNAL of the American Medical Association.

Since 1947, when appropriations were first made available, a total of 78 four-year medical schools have received grants of up to $25,000 annually, and six two-year schools have received grants up to $5,000 annually. This amounted to a total of $2,021,887 in grants awarded for the year 1956-1957. It has been the policy of the Public Health Service for each school to formulate its own program according to its needs and the local situation. The programs have varied widely from vertical teaching plans in which students devote a specified time entirely to the study of cancer to horizontal pro-

grams which have attempted to improve cancer teaching in all phases of the curriculum. Many schools have adopted combination plans with elective or prescribed courses in different phases of cancer. Eight schools have established separate departments on oncology. A member of one of the major departments is usually designated as coordinator of the teaching program. Coordinators of the cancer teaching programs are widely distributed in various teaching disciplines with 39% in surgery, 27% in pathology, 11% in medicine, and 10% in oncology. The remaining 13% are distributed in radiology, anatomy, and gynecology.

Early in the program monies were used for equipment, but by 1956-1957 over 80% of funds were expended for personnel. The salaries of 268 professional medical school teachers and 236 nonprofessional medical school employees have been provided by these grants. Sixteen schools use a part of these funds for student research fellowships and 35 use them for visiting lecturers.

TABLE 1.—*Tabulation of Questionnaires Sent to Senior Faculty Members Not Associated with Cancer Teaching Program in Medical Schools, 1957*

	Pathology		Medicine		Surgery		Radiology		Anatomy	
Replies, no.	87		40		37		35		22	
Schools replying	38		33		38		33		21	
Able to evaluate	32		37		36		33		11	
	Yes, %	No, %	Yes, %	No, %	Yes, %	No, %	Yes, %	No, %	Yes, %	No, %
Improved cancer teaching	90	...	97	3	100	0	100	0	100	0
Improved cancer diagnosis	87	...	97	3	86	8	90	...	36	...
Improved cancer therapy	68	3.1	91	5	75	19	93	...	36	...
Improved cancer research	65	15	78	19	77	11	63	21	91	...
Improved postgraduate education	62	15	81	5	71	16	72	6	36	18
Improved lay cancer education	60	21	48	21	58	22	42	12	54	...
Adversely affected curriculum	6	90	...	100	3	91	3	93	9	81
Favorably affected curriculum	65	15	54	35	60	30	45	24	81	9
Attracted participation teachers from other departments	90	3	86	5	94	3	84	3	72	...
Coordinator helpful	50	12	78	3	75	3	81	3	91	...

As reported in Congress in 1953, the sum of 12 billion dollars is lost each year as a result of incapacitation to the family breadwinner from cancer. An estimate of the hospital cost to each cancer patient was $535 with an additional cost of $350 for physicians' services, for a total of $885. If a teaching program can reduce this loss of productivity and the period of hospitalization, it will more than justify its expense.

Faculty, Student, and Coordinator Questionnaires

Different questionnaires were sent to faculty members, medical students, and coordinators of cancer teaching and returned separately and anonymously to this committee. Some facts have been collected, but results are reported mainly as opinion since so many different teaching techniques have been employed and situations vary so markedly that specific comparison would be invalid.

Questionnaires were sent to the heads of five departments of 63 medical schools whose coordinators of cancer teaching had previously returned questionnaires. Four of these departments would normally be expected to engage in the teaching of cancer, but one subclinical department, namely anatomy, was quizzed in order to ascertain the effect of the program in an area not commonly associated with cancer teaching. A total of 315 faculty questionnaires were sent, and 171 were returned. One hundred forty-nine of the 171 replying felt able to evaluate some part of the program (87% of replies). Replies were predominantly favorable and are summarized in table 1. It is of note that five of the faculty members felt that the program affected the curriculum adversely (3.4%). Faculty opinions concerning the most valuable contributions of the cancer teaching programs in order of frequency mentioned are professional personnel, teaching equipment, tumor clinic, tumor registry, nonprofessional personnel, research equipment, student fellowships, and visiting lecturers.

Questionnaires were returned from 61 senior medical students in 31 medical colleges. Students were selected in most instances who were presidents of their class, and again their answers are for the most part opinion rather than fact. Eighty-four per cent believed cancer had been well taught in their school. Eighty-six per cent felt that the net result was an influence which had stimulated interest in the cancer problem in their class.

Questionnaires were sent to the coordinators of cancer teaching in 78 four-year and 6 two-year medical schools. Sixty-three schools (75%) returned answers. Several of the coordinators who did not answer replied that they were unable to answer the questions or give figures because of the nature of their programs. Several two-year schools felt the program was too new for evaluation in their particular schools.

Ninety-five per cent of coordinators answering felt that cancer education had improved as a result of these grants. Eighty-five per cent felt that cancer diagnosis had improved and 81% felt that therapy had improved in their institutions. Three, or 5.0%, of the coordinators felt that they had been hampered in the establishment of a program because of lack of cooperation of senior faculty members or antipathy to the program.

The teaching grants have provided aid for existing cancer diagnostic and cancer research laboratories in many schools. It has aided in the establishment of new cancer research facilities and tumor registries and has assisted other departments, such as medical arts, audiovisual, and other teaching aids (table 2). In addition, 12 cancer research labora-

tories, 9 tumor registries, 6 medical arts or audio-visual departments, and 3 tissue culture laboratories have been established.

It is difficult to establish a true cost of cancer teaching, but 46 schools reported that an average of $31,618 per school was spent yearly in addition to

TABLE 2.—*Effect of Cancer Teaching Grants on Laboratory and Clinic Facilities in Sixty-three Four-year Medical Schools*

Type of Facility	New	Aided	No Effect or Not Stated
Tumor clinic	22	31	10
Cytology laboratory	27	8	28
Isotope laboratory	22	6	35
Cancer detection center	13	7	43

the cancer teaching grants. Because of personnel provided by the teaching grants many schools were able to secure additional research grants; in 32 schools this amounted to an average of $50,400 per school and compares to an average of $229,000 per school spent on cancer research in 50 schools which had no relation to the teaching grants. In a group of 25 of the smaller medical colleges with average annual budgets of slightly over 1 million dollars, it was ascertained that 14.4% of the budget was spent on cancer research and teaching and that 18% of cancer research funds have been brought to these schools because of the teaching grants.

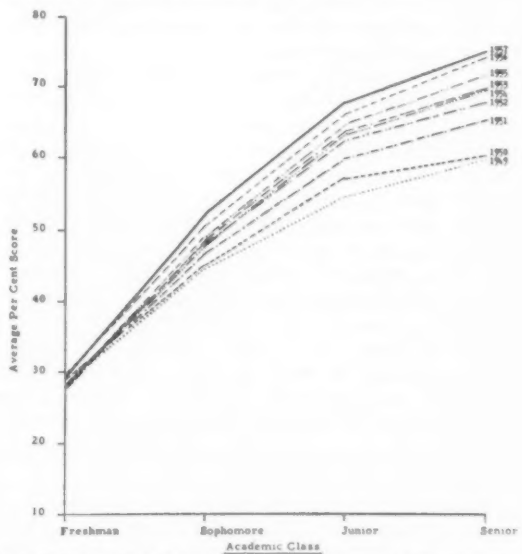
Questions were asked concerning the type of cancer teaching program established, 75% of replies indicated a program which was chiefly clinical, only 7.4% indicated a predominantly research program, but 62% of replies stated that an attempt was made to balance the program between research and teaching. Twenty-three per cent of the coordinators felt that research was a necessary part of a cancer teaching program. The majority of coordinators replying to questions concerning lay teaching in the community considered this to be a part of their duties, this being a part of the crusade against cancer. Nine out of 10 coordinators participated in postgraduate as well as undergraduate medical instruction.

The number of patients seen in tumor clinics was estimated in 34 schools for two two-year periods. Prior to the grants in 1946-1948, 33,952 patients were seen in organized tumor clinics in 28 schools. In 1954-1956, 71,544 patients were seen in 34 organized clinics. Six schools did not have tumor clinics prior to 1949. Thirty-two schools reported that students had become interested in cancer research during the 10-year grant period, as there was an average of 12 students per school who became interested in choosing cancer research as a career as a result of the cancer teaching program.

Cancer Learning Examination

Perhaps the most significant yardstick of the value of the cancer teaching programs was established at the University of California in 1949. Bierman and McClelland [3] formulated and administered the first interschool annual examination in the subject matter of cancer through an education project. Results of this examination were later evaluated by Towner and Galloway,[4] and more recently this project has been conducted and evaluated by Wood and associates [5] and Loret and West.[6] The examination, which is revised annually, consists of 150 multiple-choice questions on the subject matter of cancer. The test is broad in its coverage of neoplastic disease, attempting to cover the diagnosis, biological characteristics, and treatment of all types of cancer.

The education project supplied each school with two sets of results: first, the individual scores of students and, secondly, a comparison of the performance of individual schools including national averages and a breakdown of results into categories by site, diagnosis, characteristics, and treatment. This allowed each school to determine the relative strengths and weaknesses of cancer learning and teaching in that school. The examination has been given to 137,578 medical students since its inception and is given annually in April throughout the country in most medical schools.



Mean Per Cent Scores for All Students Tested on Nine Editions of the "Examination for Students of Medicine in the Subject Matter of Cancer"

Results of cancer learning examination over nine-year period.

In the figure, the results of the examination for nine years are summarized. In every year except 1954, the results at graduation have improved. The greatest increase in knowledge of cancer occurs in the second year, which is the conventional period when students are instructed in pathology, and, of course, oncology. The increment of learning for the senior student has improved 17% from 1949-

1957, as indicated by the average per cent score. This examination is the only interschool examination which permits a valid comparison of different teaching techniques and curricular methods. National and State Board examinations are of necessity selective in varying degrees. A number of studies of this examination have been completed,[7] and others are in progress which add to our knowledge of the value of teaching methods in other phases of medicine as well as cancer.

Comment

It is apparent from the above-mentioned effects of the cancer teaching programs that much has been accomplished in pursuit of the objectives set up by the National Advisory Council in 1947. There is no question but that funds appropriated have aided many schools in developing or expanding a subdepartment concerned primarily with the cancer problem in teaching, in research, or in service to patients. This has tended to offset the centrifugal acceleration of teaching of specialized medical disciplines required for cancer diagnosis and therapy by developing a compensatory centripetal teaching element which aids the student by organizing and correlating the work of these specialties so that a better look may be obtained at the entire problem of the patients.

As far as can be determined the teaching program has fulfilled the following objectives: new methods of analysis of medical teaching effectiveness systematically explored on a national basis in order to attempt to document quantitatively the results of the cancer teaching program; improved cancer learning as evidenced by the results of the annual examination on the subject of cancer learning, from 1949-1957; additional teaching personnel whose main interest is in cancer added to the medical school faculty; the establishment of new research facilities; aid to other existing laboratories with expansion of their facilities; increased postgraduate instruction in neoplastic diseases; the establishment of student fellowships; and more people made aware of the magnitude of cancer and its impact on the human race.

The complete lack of stereotyped teaching programs is remarkable and emphasizes the major role played by medical schools in adapting these programs to their needs. An eventual lowering of cancer mortality is the ultimate goal of any cancer teaching program, and perhaps this program has been one of the contributory factors that has resulted in the earlier diagnosis and lowered death rate of cancer of the cervix that has been reported in a number of areas in this country. While the program is of value to the large medical schools, its greatest contribution has been to the smaller, less well-endowed schools. It has provided personnel who can attract cancer research funds that otherwise would go elsewhere. Some of these research units have become self-sustaining because of their scientific contribution.

The grant program is a potent reminder of the unsolved nature of the cancer problem and the continual need to graduate physicians who are highly motivated and trained to accomplish the utmost cancer control with existing techniques and tools. Epidemiologic and statistical evidence points to an increased importance of neoplastic disease as a cause of death, and it is entirely possible that the prevention of cancer may in the long run be a more practical achievement than the chemotherapeutic cure which is desperately sought. The instruction of the medical student in this area leaves much to be desired. Instruction in cancer cannot be isolated or delegated to specialized instruction and hospitals. Good medical teaching with an increased emphasis on the protean character of cancer, its cause, diagnosis, and treatment, is possible and has been realized to an appreciable degree in all of the cancer teaching programs analyzed.

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This study was prepared by a committee of coordinators of cancer teaching appointed in June, 1956, with Dr. Olson, chairman.

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VENTRICULAR ANEURYSM AFTER MYOCARDIAL INFARCTION

SURGICAL EXCISION WITH USE OF TEMPORARY CARDIOPULMONARY BYPASS

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A ventricular aneurysm developed after myocardial infarction in a 50-year-old man. It was large enough to cause a bizarre configuration of the heart shadow in chest roentgenograms and was found at thoracotomy to measure 10 cm. in diameter. Extracorporeal circulation, employing a bubble diffusion oxygenator and roller-type complete occlusion pumps, was established by inserting one catheter into the common iliac artery through the right common femoral artery and another catheter, with openings at two levels for the superior and inferior venae cavae, through the right common femoral vein. The adherent parietal pericardium was dissected from the surface of the aneurysm, and the aneurysm was then completely excised, with the edges trimmed back to the fuctioning myocardium of the left ventricle. Closure was made with a continuous suture of silk reinforced with interrupted mattress suture of silk, and the suture line was 10 cm. in length. The patient's early postoperative course was moderately complicated by fever, but after this subsided on the third day his recovery was uneventful. He was dismissed from the hospital in ambulatory condition 18 days after operation. Since this initial report, another patient with a similar lesion underwent operation successfully.

Improved methods of medical management have reduced the mortality in patients suffering an initial myocardial infarction to approximately 5%, and the majority of patients are able to resume relatively normal activity and return to work.[1] A significant number of patients who survive the initial attack, however, are permanently and seriously incapacitated, and in many instances death results from localized myocardial necrosis. Among the more lethal complications of myocardial infarction are (1) rupture of the ventricle, (2) rupture of the interventricular septum, (3) rupture of a papillary muscle, (4) mural thrombosis with embolization, and (5) ventricular aneurysm. In spite of the known poor prognosis in such cases, until recently these complications were treated only by supportive means and routine cardiac medication. Within the past few years, particularly with development of techniques of open-heart surgery, reconstruction of the heart severely damaged by myocardial infarction has become a reasonable consideration in an attempt to salvage such patients. Repair of interventricular septal defects after myocardial infarction has already been accomplished with use of a pump oxygenator for cardiopulmonary bypass.[2] Rupture of a papillary muscle after myocardial infarction has not been reported, but repair of such lesions produced by trauma or infection has been successful in our own patients. It was reasonable to expect that other complications of acute myocardial infarction would be operated upon by open cardiac techniques.

Ventricular aneurysm occurs in a significant number of patients surviving myocardial infarction—an incidence varying, according to reports, from 10 to 38% depending upon definition of the term.[3] Ventricular aneurysm may occur acutely during the first few days after infarction but usually appears weeks or several months later. Hypertension and failure to adhere to strict rules of convalescence are causative factors in development of ventricular aneurysm. The most common location for ventricular aneurysm is the anterior and apical portion of the left ventricle. Presence of the noncontractile sac in this location interferes with the ejectile force of the left ventricle. Pulsations that are paradoxical to the remainder of the ventricle are demonstrable fluoroscopically. Cardiac output may be sharply reduced. DeCamp,[4] for example, demonstrated in a patient with ventricular aneurysm a cardiac output of 1.6 liters per minute, whereas normal expected output for his patient was 4.0 liters per minute. Congestive heart failure was responsible for death in 70% of patients with ventricular aneurysm according to Schlichter and associates,[3] who studied 102 autopsied patients, and only 12% survived more than five years after the acute episode. Other causes of death in ventricular aneurysm include rupture of the aneurysm and embolic phenomena emanating from thrombosis in the noncontractile pouch.

In 1944 Beck[5] attempted to reinforce the sac of a ventricular aneurysm using fascia lata, but the patient died five weeks later from complications. Murray[6] subsequently reported experimental excision of myocardial infarcts and demonstrated an increase in cardiac output by removal of the "ex-

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pansion chamber." In 1951 tangential excision and lateral aortorrhaphy was first advocated as the procedure of choice for sacciform aneurysms of the thoracic aorta.[7] Since that time application of this concept of treatment to cardiac aneurysm has been attempted in isolated instances. Recently surgical treatment of ventricular aneurysm after myocardial infarction has been reported by Bailey and associates[8] in six patients, with five survivors. The technique consisted of tangential excision of the sac and ventriculorrhaphy, with use of a special clamp across the base of the lesion. Among the dangers associated with such a procedure when applied to the beating heart are dislodgement of mural thrombi and massive embolism, rupture of the base of the aneurysm produced by the clamp, and inaccurate excision of the damaged tissue resulting in impaired left ventricular function. Temporary cardiopulmonary bypass with use of a pump oxygenator appears to be a more rational approach to surgical repair of ventricular aneurysm, since it would obviate these potential hazards. The purpose of this report is to describe a case in which aneurysmectomy and ventricular repair were successfully performed with use of temporary cardiopulmonary bypass.

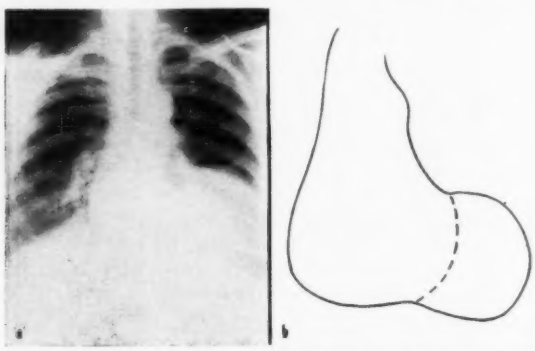

Fig. 1.—*A*, roentgenogram of chest in posteroanterior projection and, *B*, diagram showing abnormal cardiac contour produced by aneurysm of left ventricle.

Report of a Case

A 50-year-old man was admitted to the Methodist Hospital on Jan. 13, 1958, with dyspnea on exertion. Three months prior to admission he first experienced substernal pain and dyspnea, which occurred on each of two successive days. A diagnosis of myocardial infarction was made by electrocardiogram, and he was treated with bed rest for a period of 10 weeks. Shortly after the infarction congestive heart failure occurred, and digitalis was administered. Since the infarction he had experienced occasional precordial pain, which was relieved by sublingual nitroglycerin tablets. For the month before admission he had dyspnea after mild exertion, orthopnea, and occasional paroxysmal nocturnal dyspnea. Blood pressure stabilized at about 120/90 mm. Hg after the infarction, in contrast to a pressure of 170/100 mm. Hg a short time before the heart attack. Several years previously the systolic blood pressure had been recorded as high as 250 mm. Hg.

Physical examination on this admission revealed a moderately obese man in no distress. The heart was enlarged to the left anterior axillary line, and a systolic heave was present at the apex. No murmurs were audible. The lungs were clear, and the liver was not enlarged.

Laboratory studies revealed a hemoglobin level of 12 Gm.% and hematocrit of 38 vol.%. The remainder of the hemogram was normal, and urinalysis was normal. The electrocardiogram revealed an extensive anterior wall infarction, with persistent changes in ST segments in the precordial leads. Roentgenograms of the chest revealed a bizarre cardiac configuration and a significantly enlarged left ventricle with a bulbous apex suggestive of cardiac aneurysm (fig. 1). At fluoroscopy the ventricular aneurysm pulsated parodoxically to the pulsation of the left ventricle. Cardiac catheterization was not done.

On Jan. 17, 1958, with the patient under thiopental (Pentothal)–ether anesthesia, a bilateral anterior thoracotomy was performed, entering the fourth intercostal spaces and transecting the sternum at the same level. An apparent thrombosis of the left anterior descending coronary artery was noted approximately 2 cm. from its origin. An aneurysm 10 cm. in diameter was present in the anteroapical portion of the left ventricle (fig. 2). The parietal pericardium was adherent to the aneurysm, which expanded with each ventricular contraction.

Preparations were made for temporary cardiopulmonary bypass with a stainless steel bubble diffusion oxygenator and roller-type complete occlusion pumps.[9] A single vena caval catheter was used to withdraw blood from the superior and inferior venae cavae, inserting the catheter through the right common femoral vein (fig. 2). Another catheter was inserted through the right common femoral artery and threaded into the common iliac artery for return of oxygenated blood to the systemic circulation. The rate of flow in the extracorporeal circuit was 3,000 cc. per minute equivalent to 35 cm. per kilogram of body weight per minute. Intermittent aortic occlusion was used throughout the period of total bypass to reduce coronary venous return to the heart.

With the bypass functioning, the adherent parietal pericardium was dissected from the surface of the aneurysm, and the aneurysm was entered at its apex. The aneurysmal wall was extremely thin, measuring about 3 mm. in thickness. The aneurysm was partially lined with laminated thrombus, which extended into the ventricular cavity. The sac was completely excised, with the edges trimmed back to the functioning left ventricular muscle. A small amount of laminated thrombus was removed from the left ventricular cavity. The resulting defect in the ventricular wall was repaired with a continuous suture of 000 black silk reinforced with multiple interrupted mattress sutures of silk. The ventricular suture line was 10 cm. long (fig. 2). Blood was permitted to fill the left ventricle as the myocardium was being sutured in order to eliminate air from the cavity, but in spite of this maneuver a small quantity of air entered the coronary system. Perfusion was continued with cautious use of phenylephrine (Neo-Synephrine) hydrochloride and epinephrine, and forceful ventricular action resumed. Although the pump oxygenator was in use for 32 minutes, total cardiopulmonary bypass was necessary for only 11 minutes. The pericardium was repaired and the thoracotomy closed, with use of intercostal tubes for subaqueous drainage.

The patient's early course after operation was complicated by fever and mental disorientation during the first few days. After the fever subsided on the third day his subsequent recovery was uneventful, and he was dismissed from the hospital 18 days after operation in ambulatory condition. His blood pressure at the time of dismissal was 130/80 mm. Hg. The patient has continued to improve and is progressively increasing his physical activity. He has noted a significant improvement over the status before operation.

Pathological examination of the excised specimen revealed a fibrous sac measuring 10 cm. in diameter containing a small amount of mural thrombus. Histological sections showed old and relatively recent thrombus, with loss of endocardium. Chronic and acute inflammation was evident within the underlying densely hyalinized fibrotic tissue. In

some areas of the specimen striated anastomosing muscle of cardiac type was present containing nuclei that were barely discernible.

Comment

In this patient a major portion of the left ventricle was defunctionalized by an extensive myocardial infarction occurring three months previously. Impaired function of the remaining myocardium resulted, since with each systole the noncontractile sac ballooned outward, thus interfering with normal ventricular ejection. Furthermore, the amplitude of contraction of the normal myocardium was reduced by the presence of the nonfunctioning area. Once the structural abnormality was removed, restoration of the ventricle as a coordinated functional unit was accomplished and ventricular efficiency was improved.

Most ventricular aneurysms secondary to myocardial infarction are located on the anterior or apical portion of the left ventricle, a location that is favorable for excision. Bailey has emphasized the technical problems in ventricular aneurysmectomy, which include prevention of embolism from the sac during excision, secure approximation of the remaining ventricular wall after excision, and limitation of the extent of ventricular resection to an amount compatible with survival. His technique consisted of applying a clamp across the base of the lesion, excision of the redundant tissue, and repair of the ventricular margin. Such a method, although relatively satisfactory in his reported cases, does not provide an accurate means of excising the destroyed tissue and repairing the ventricle. Moreover, experimental studies have demonstrated that application of a "noncrushing" clamp to the ventricle produces full-thickness necrosis and scarring of the myocardium.[10] The technique of open repair, therefore, with use of cardiopulmonary bypass would obviate such complications and permit accurate excision of the sac, leaving only functioning myocardium, papillary muscles, and chordae tendineae of the mitral valve.

The technique of cannulation of the superior and inferior venae cavae by way of the common femoral vein used in this patient may be well suited to patients with myocardial infarction or other serious lesions. Presumably in a critically ill patient in congestive heart failure the cannulation of the venous and arterial systems could be performed with the patient under local anesthesia. Circulatory support could then be utilized even before general anesthesia is induced. In fact, the anesthetic agent could be introduced through the oxygenator while the patient's circulatory system is being supported. Once bypass is started and anesthesia induced the cardiac repair could be undertaken.

Summary

Ventricular aneurysm is a common complication of myocardial infarction. Serious disturbance in cardiac function may result, depending on extent of the lesion and other factors. Cardiac output is impaired by the noncontractile sac, which expands paradoxically while the remainder of the ventricle contracts. Congestive heart failure, cardiac rupture, and embolism emanating from intrasaccular thrombosis lead to high mortality in such cases.

Surgical excision of the sac should be considered in patients with ventricular aneurysm, particularly if cardiac function is impaired. In a 50-year-old man a large left ventricular aneurysm was successfully resected, with use of a pump oxygenator for cardiopulmonary bypass.

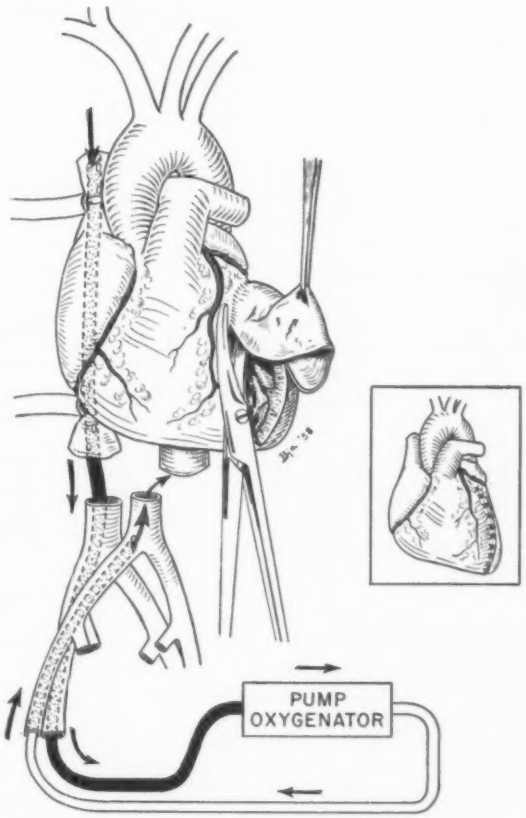

Fig. 2.—Technique used in excision of aneurysm and repair of left ventricle. Ventriculorrhaphy measured 10 cm. Cannulation of venae cavae through femoral vein and of common iliac artery through femoral artery facilitated performance of cardiopulmonary bypass in this patient.

Addendum

Since this paper was submitted a 48-year-old patient with massive left ventricular aneurysm was operated on successfully with use of temporary cardiopulmonary bypass. Cardiac catheterization studies were made before and five weeks after operation with the following results. Before operation the patient's pulmonary arterial pressure was 60/30 mm. Hg (mean 45); his right ventricular pressure was 60/0 mm. Hg (mean 45); and his cardiac index, at rest, was 1.6 liters per square

meter per minute. After operation his pulmonary arterial pressure was 30/10 mm. Hg (mean 22); his right ventricular pressure was 25/0 mm. Hg (mean 15); and his cardiac index at rest and after exercise was 1.84 and 3.54 liters per square meter per minute respectively. These findings suggest an improved cardiac function and relief of left-sided stasis.

This study was supported in part by the C. J. Thibodeaux Foundation and the United States Public Health Service.

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THE LABORATORY DIAGNOSIS, BIOLOGY, AND TREATMENT OF LATENT SYPHILIS

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Latent syphilis is defined as that stage of the disease found in a patient who is asymptomatic, has a reactive blood serologic test for syphilis (STS), presents neither clinical nor other laboratory evidences of syphilis after thorough physical examination, and has a cerebrospinal fluid which, on examination, is completely negative. If the disease is of more than two but less than four years' duration, it is called early latent. If the disease is of four or more years' duration it is termed late latent. This is an arbitrary division based on potential infectiousness.

A physician who suspects a patient of having latent syphilis must also appreciate the possibility that he may have instead a biological false-positive (BFP) STS reaction if lipid antigens are used. The interpretation of such reactions is difficult, since the various modifications of the complement-fixation or flocculation tests may give BFP reactions in many types of nontreponemal diseases. In such

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Read before the 11th International Congress of Dermatology, Stockholm, July 31, 1957.

With the decrease of reported syphilis in the United States, and with this decrease being most marked in the early syphilis category, the proportion of latent syphilis to all syphilis has increased, since it is a chronic form of the disease. The necessity of differentiating the patient with latent syphilis from the BFP reactor becomes increasingly important, since both groups are relatively larger in our present population. Latent syphilis requires no more or no different treatment than does early syphilis. A total dosage of 4,800,000 units of procaine penicillin G in oil and aluminum monostearate or half of this amount of benzyathine penicillin G is adequate for both. It is not the goal to obtain seronegativity in the treatment of the patient with latent syphilis since seronegativity may or may not occur within the patient's lifetime. The TPI test is a better indicator of the immunological status of the luetic patient, after the test has once become reactive.

instances time rules out the acute BFP reaction, but the Treponema pallidum immobilization test (TPI) or a similar specific treponemal antigen test such as the Treponema pallidum complement-fixation test or Reiter Treponema complement-fixation test must be used to rule out the chronic BFP reaction. The diagnosis of latent syphilis is no longer entirely one of exclusion, but can now be proved by a combination of specific treponemal antigen tests, immunological studies, and the general course of the disease. With the decrease of syphilis in the United States (485,560 total cases in 1941 to 122,075 total cases in 1955),[1] and with this decrease being most marked in the early syphilis category, the proportion of latent syphilis to all syphilis has increased, since it is a chronic form of the disease. Likewise, if one assumes that the number of acute and chronic BFP reactors has remained constant, then the percentage of false-positive reactions in the positive STS group will be proportionately higher. Thus the necessity of differentiating the patient with latent syphilis from the BFP reactor becomes increasingly important, since both groups are relatively larger in our present population.

A study[2] of inoculation syphilis, in 62 human volunteers at Sing Sing prison, has shed important light on the immunological status of the patient who has had syphilis. Twenty-six patients who had been previously treated for proved or presumed late latent syphilis were inoculated intracutaneously with 100,000 virulent T. pallidum of the Nichols strain. Of the 26, 10 were either infected by the inoculum or had an immunological response to it, since they developed both lesions and a significant rise in STS titer. Only one of this group of 10 developed a darkfield positive lesion. One of the darkfield negative lesions was clinically a gumma. Apparently, immunity in some syphilitics is great enough to produce an Arthus-like phenomenon (a gumma) after a large challenge with virulent T. pallidum. However, in others, immunity is not adequate to protect against reinfection.

Three of the 26 patients developed darkfield negative lesions (small papules at the inoculation site) with no accompanying elevation in STS titer. The remaining 13 patients showed no change either clinically or serologically.

Five patients with untreated latent syphilis showed neither clinical nor serologic response after a similar inoculation of virulent spirochetes. They were resistant to superinfection and nonreactive immunologically to the inoculum given.

This study[2] further shows that those who have had a previous syphilitic infection may show an anamnestic or accelerated immunological response. The injection of heat-killed T. pallidum resulted in an anamnestic TPI antibody rise in certain individuals previously treated for early syphilis, but no change was noted in reagin titer. When a similar inoculum was administered to normal persons, no increase in TPI or reagin titers resulted. When the injected challenge consisted of living organisms, those patients who had had syphilis in the past showed a rise in the TPI antibody prior to a rise in reagin titer. The opposite response was observed when live spirochetes were injected into normal individuals who previously had not had syphilis. Reagin was detectable before TPI antibodies appeared.

For many years it has been known that previous infection, of sufficient duration, gives rise to some degree of resistance to further treponemal exposure.[3] The Sing Sing studies extended our knowledge of this fact by using the T. pallidum challenge as a method for measuring this immunity.

It has not been shown that reagin, which accounts for the reactivity of our common serologic tests, has any effect on the spirochete. It appears earlier in the blood than does the TPI antibody, but after the treatment of STS and TPI positive early syphilis, or of latent syphilis, the TPI test may remain positive long after the STS has become negative. The TPI test therefore is a better indicator of the immunological status of the luetic patient, after the test has once become reactive. However, we have had three instances of patients with late tabes dorsalis in whom both the blood and spinal fluid have been nonreactive with lipoidal and TPI antigens.

Many syphilologists believe, and Thomas has stated,[4] that latent syphilis requires no more or no different treatment than does early syphilis. A total dosage of 4,800,000 units of procaine penicillin G in oil and aluminum monostearate is adequate for both. It may be given intramuscularly in divided doses of 600,000 or 1,200,000 units each on a daily or a twice weekly schedule, until this total dosage has been reached. If longer acting penicillin preparations, such as benzathine penicillin G, are used, a dosage of 2,400,000 units is adequate. It is not the goal to obtain seronegativity in the treatment of the patient with latent syphilis since seronegativity may or may not occur within the patient's lifetime.[5]

Should serious sensitivities to penicillin be present, oxytetracycline hydrochloride or chlortetracycline hydrochloride may be employed, in amounts of 1 Gm. every six hours for 10 to 12 days, making a total dosage of 40-48 Gm.[4]

A recent report of the use of synnematin B in the treatment of a case of primary syphilis in a human and experimental syphilis in rabbits indicated that this antibiotic may represent another injectable compound which is less toxic and may be as effective as penicillin.[6]

If, during the observation of a patient with latent syphilis after treatment, the STS titer shows a sustained rise of two or more dilutions, retreatment may be necessary, but only after complete reevaluation of the disease in the patient. The development of signs or symptoms of active syphilis in a previously treated patient presumed to have had latent syphilis means either that a relapse has

occurred or that the patient has sustained a reinfection or superinfection. In such instances retreatment is indicated.

If the results of Moore's[7] compilation of cooperative clinical group data concerning treated latent syphilis are compared with Bruusgaard's[8] data concerning untreated luetic patients, we are able to gauge the benefits afforded by treatment. Although the two sets of figures are not strictly comparable, since the treated cooperative clinical group was followed for 10 to 15 years, compared to Bruusgaard's longer period of observation, it is possible to arrive at some interesting conclusions. The proportion of patients achieving clinical quiescence and persistent seronegativity is increased from 35% in the untreated group to 85% in the treated series. Those showing clinical quiescence but persistent seroreactivity are reduced from 35 to 7.5% and the probability of progression or relapse is diminished from 20 to 30% to 2 to 5%.[9] Thus the gains to be made by treating the patient with latent syphilis are appreciable. The data on the cooperative clinical group[7] were obtained from the study of patients who had been treated with arsenicals and heavy metals. Undoubtedly, if penicillin had been used, the results would have been as good, if not better.

The treatment of latent syphilis is not different from that of early syphilis. Nothing is gained in attempting to reduce the STS reactivity by combined heavy metal–penicillin regimens or retreatment courses. The reagin has had several years to form, and regardless of treatment or retreatment will probably take several to many years to disappear. Late latent syphilis is now the most common, but least important, type of the disease, and undoubtedly would not require treatment (except possibly in pregnancy) if as clinicians we possessed sufficiently sensitive tools to differentiate between the patient who truly has latent syphilis and the one who has an asymptomatic form of the disease which later might become symptomatic. The biological false-positive reactor should no longer confuse the picture, since he can now be separated from the latent syphilis group by specific treponemal tests.

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THE SYMBOL OF MEDICINE.—The two important symbols that have emerged from serpent worship are the caduceus and the Aesculapian staff. Both have the staff or rod as its central object. . . . Mercury once separated with his wand two serpents twisted in mortal combat; thereafter he carried messages between enemies, and his wand became a badge of neutrality. . . . In 1856 the U. S. Marine Hospital Service, antecedent of the U. S. Public Health Service, was convinced that the caduceus best portrayed the non-combatant character of the medical corps. . . . Whether the true symbol of medicine is the caduceus or the Aesculapian rod is a question that has been the subject of argument over many years. . . . When a hospital or a sanitarium or a medical instrument firm or pharmaceutical company or a medical book printer ascribes to the symbol of Hermes, they ascribe to a symbol the meaning of which they may not have understood. If they understand by the symbol, earning of money, they may be correct. If they understand by the symbol, craft and cunning, this too may be their standard. If they understand by the symbol, neutrality, then they certainly err. Peacetime medicine is anything but neutral and modern war time medicine is certainly not neutral. Neutrality does not exist today. The weight of the evidence collected from mythology, archeology, anthropology, art, military science, literature, religion and heraldry confirm what has long been known, the fact that the true symbol of medicine is the Aesculapian rod, a single snake coiled about a staff.—Frederick Stenn, M.D., The Symbol of Medicine, *Quarterly Bulletin of Northwestern University Medical School*, Spring, 1958.

HEMOGLOBIN LEVEL AND RED BLOOD CELL COUNT FINDINGS IN NORMAL WOMEN

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Erythrocyte counts and determinations of hemoglobin concentration were carried out on blood samples obtained from three groups of women. There were 84 entirely free from complaints, symptoms, or positive physical or laboratory findings; a second group of 293, described as normal with physiological variants, were normal by anamnestic, physical, and laboratory criteria but had complaints ascribed to anxiety, tension, or fatigue. A third group of 286, described as normal with gynecologic variants, had complaints such as dysmenorrhea, menstrual irregularity, or menopausal symptoms although they were normal when objectively appraised. The red blood cell counts gave an average of 4,370,000 erythrocytes per cubic millimeter, with 95% of the women falling within the range from 3.81 to 5.03 million per cubic millimeter. The hemoglobin determinations gave an average of 12.55 Gm. of hemoglobin per 100 cc. of blood, with 95% of the women falling within the range from 10.2 to 14.8 Gm. per 100 cc. The values obtained for the gynecologic variant group were not significantly lower than the values for the first, asymptomatic group, and no effects of age were demonstrated. These results are important as reference figures in diagnosis and treatment, since it is futile to strive for values higher than the average in the treatment of supposed anemia. Both of these figures are lower than those generally quoted as normal in textbooks.

A mean hemoglobin level of 12.55 Gm. per 100 cc. and a mean red blood cell count of 4,370,000 per cubic millimeter were the findings we obtained when we statistically analyzed the data from the charts of 663 "normal" women. In an extensive search of the literature, we have been unable to find any reference to any similar clinical study. The accepted standards are 14 Gm. of hemoglobin per 100 cc. and 4,800,000 red blood cells per cubic millimeter.[1] In the opinion of an authority in the field of hematology, attempts to treat patients in order to raise their hemoglobin levels or red blood cell counts to certain so-called normal values may be not only wasteful but harmful.

Hematocrit reading, mean corpuscular volume, mean corpuscular hemoglobin, bone marrow studies, and/or blood studies in the isotope laboratory may be the coming methods of determining an anemic state, but, as yet, a drop of hemoglobin level and/or red blood cell count from the accepted standards is the recognized definition of anemia.[1a] Just as changing to the metric system in our prescription writing after 25 to 30 years is still in the process of being universally accepted, so will changing the definite standards of determining abnormal blood states take time. Laboratory acceptance, hospital requirements, blood bank prerequisites, pharmaceutical advertising pressure, and, most of all, established clinical usage assures a place for red blood cell count and hemoglobin determinations as clinical tools now and for quite some time.

In our private practice, when we have attempted to bring hemoglobin level and red blood cell count on women up to the previously established standards of 14 Gm. and 4,800,000,[2] we have too frequently failed. Complete histories and physical examinations frequently would be normal and other laboratory procedures within the allowable normal range, but the red blood cell count would probably be 500,000 less and hemoglobin level 1 to 2 Gm. less than the standards quoted. Changes in diet and medication have been ineffective. Consultations have added nothing. It has been most frustrating.

Consequently, we began to question the accepted standard of normal. Review of the literature is disconcerting. The original normal figures were determined nearly a century ago by the results of only four blood cell counts.[1b] The currently accepted normals are based upon arithmetical averages, tabulated in 1933 on the totals of reports from all sources, countries, or methods [3] and upon studies of ambulatory medical students and/or nurses [4] upon whom no history or physical examination is reported. Many textbooks, including the most recent copies available to us, have copied these figures as normal and have quoted these references as authority.

More recent studies are similarly lacking in adequate criteria for determining the "normal" person. For example, one chose all inmates in a home for aged patients.[5] Another studied groups of 4-H girls in summer camps whose local physicians considered them to be "health champions."[6] One paper included the study of college women "reported as healthy."[7] Another author chose to consider 48

Read at the 10th Clinical Meeting of the American Medical Association, Nov. 27, 1956, Seattle.

undergraduate students having an average age of 20, who were students in a college physiology course.[8] The authors of one report, in 1954, on hemoglobin determinations in 326 normal adult women frankly discuss their choice of women by stating, "There is a wide variety of adult subjects. There were some invalids among them, but any with disorders likely to affect the hemoglobin were excluded. Some were residents of an old folks' home. . . . In general, the adults were more healthy and in better socio-economic class than those usually studied in surveys of this kind." [9]

Method of Procedure

There has been no study reported in which an effort was made to statistically compute the standard red blood cell count and hemoglobin level on women medically determined to fall within acceptable criteria for good health by careful clinical evaluations. We have proceeded to do this by reviewing 7,300 consecutive charts in our private practice. These charts represented women, at least 95% of whom were from middle-class homes. To the best of our knowledge they all have adequate standards of living. That is, all can afford adequate places to live, food to eat, and clothes to wear. All of them are private patients whose blood cell counts were taken in our office at various times of the day. We did not consider that altitude was constant in this study. The altitude in Spokane varies from 1,879 ft. to 2,383 ft. At least 30% of the women upon whom these counts were taken lived more than 50 miles away; many came from sea level; others crossed the mountains; many came by air. Some nearby towns have altitudes of less than 400 ft. To the best of our knowledge none of these women were using medicaments at the time the blood cell count was taken. None had been blood donors.

Oxalated venous blood was used in a Thoma pipet, and the erythrocyte count was made in a Spencer improved Neubauer counting chamber.[10] Hemoglobin determinations from oxalated blood were all done using an alkaline hematin method in a Leitz-Rouey photometer which had been standardized against the photometer at a local hospital. The techniques were not changed during the entire series.

We chose criteria for eliminating abnormalities as follows: No charts were included which presented any of the following medical histories: (1) upper respiratory infections within the previous three months, including the common cold, virus, or virus-like infections; pregnancy terminating within the previous three months; or major or minor surgery within the previous three months; (2) tuberculosis, cancer, hypertensive-cardiovascular disease, rheumatic heart disease, or venereal disease; (3) allergies, either mild or severe, diagnosed by well-authenticated history or physical examination; and (4) menstrual periods with an interval oftener than 25 to 28 days with flow heavier than enough to saturate three pads per day or lasting longer than seven days in the adolescent or five days in the mature woman.

Only those women were considered who had had a completely normal physical examination at the time of the red blood cell count and hemoglobin level determinations. All charts that showed any of the following were eliminated: (1) blood pressure higher than 140/100 mm. Hg; (2) pulse rate over 112; (3) gross pathology that could be discerned by fluoroscopic examination; and (4) abnormal physical findings other than *(a)* retroversion, cystocele, rectocele, and prolapse, *(b)* leukorrhea (omitting positive gonorrhea), *(c)* simple inguinal femoral, umbilical, or incisional hernia, *(d)* acne, *(e)* mild overweight or underweight, and *(f)* varicosities of the extremities. These latter changes we considered to have no direct or indirect influence upon either the red blood cell count or the hemoglobin value.

Last, all charts were eliminated that indicated that the following routine laboratory data deviated from normal ranges: (1) sedimentation rate higher than 20 mm. per hour (Wintrobe); (2) white blood cell count lower than 4,000 or higher than 12,000 per cubic millimeter; (3) abnormal differential blood smears; (4) presence of albumin, pus, casts, red blood cells, or sugar in the urine; (5) positive serology; and (6) positive smears for gonorrhea.

Most charts indicated additional laboratory or x-ray procedures. If these deviated from the normal, they were also discarded. The following abnormalities were always excluded: (1) basal metabolic rates lower than −15% or higher than +15%; (2) flat or high five-hour sugar tolerance curves; (3) nonprotein nitrogen level higher than 35 mg. per 100 cc.; (4) positive Robinson-Kepler-power water-test [10A]; (5) inadequate response to four-hour Thorn test with ATCH; and (6) x-rays showing pathology in the gastrointestinal tract, gallbladder, genitourinary tract, or chest.

This method of selection was used because all clinicians would probably agree that no "normal" woman presents a history of the diseases listed, the pathology discovered, or abnormal laboratory data reported. It seems unlikely that clinical investigators could set up a more definitive set of standards for the "normal." Moreover, it is felt that within the range of allowable statistical error of plus or minus two times the standard deviation, any investigator reviewing the same charts would select the same patients. Thus, from 7,300 consecutive charts, all but 663 were eliminated. For the purposes of this paper these 663 are considered to represent "normal" women.

Results

The mean or average red blood cell count for the 663 "normal" women was 4,370,000 with a standard deviation of plus or minus 282,000. The mean hemoglobin level was 12.55 Gm. with a standard devia-

tion of plus or minus 1.15 Gm. Plus or minus two standard deviations from the mean would give a red blood cell count range of 3,810,000 to 5,030,000 within which 95% of normal women would fall by normal statistical methods.[11] Our range of hemoglobin determinations for "normal" women is 10.2 to 14.8 Gm. Our figures were considerably lower than the figures given by Osgood [4a] and Wintrobe,[3a] whose studies have been widely adopted as representing the normal red blood cell count and hemoglobin values for the normal adult female (table 1).

Our results are based on a much larger sampling than either Osgood's or Wintrobe's results, and our cases cover a much more representative age distribution and a more heterogeneous group of middle-class women. Osgood's study was on medical students and nurses who ranged in age from 14 to 30. Our subjects were from ages 11 to 68 and represent a wide variety of occupations—students and homemakers and industrial, business, and professional women. They are, in fact, the average women in a doctor's private practice. Wintrobe's figures are based on a compilation of data from all over the world obtained by many different investigators using various techniques; one is at a loss to know just how reliable each of the figures is.

TABLE 1.—*Comparison of Results in Present Study with Those in the Literature*

Study	Subjects, No.	Red Blood Cell Count, Millions/Cu. Mm. Mean	Red Blood Cell Count, Millions/Cu. Mm. Range	Hemoglobin Level, Gm./100 Cc. Mean	Hemoglobin Level, Gm./100 Cc. Range
Present study	663	4.37	3.81-5.03	12.55	10.2-14.8
Wintrobe[3a]	369	4.80	4.20-5.40	14.00	12.0-16.0
Osgood[4a]	152	4.80	4.20-5.34	13.80	11.5-16.0

While the studies of Osgood [4a] and Wintrobe [3a] appear to be representative of most of the work appearing in the literature,[10] there are some investigators who have obtained differing results; Gradwohl's text persists (1956) [2a] in stating that the normal red blood cell count is 4,500,000. Discombe [12] stated that, although he felt that the optimum hemoglobin value for women was similar to the 14.8 Gm. he found in men, the usual value he found in women was 12.6-11.8 Gm. Hervey and others [13] found that 12.6% of women were not able to meet the minimum standard of 12.3 Gm. of hemoglobin set by the American Red Cross for blood donors.

Myers and Eddy,[9] while giving a mean of 13.8 Gm. of hemoglobin for a large group of nurses, also stated that the average hemoglobin level for a group of 48 women aged 20 was 13.0 Gm. Pett and Ogilvie [14] found an average hemoglobin level of 12.7 Gm. in a group of 1,686 women. It is evident, therefore, that other investigators have also found women to have red blood cell counts and hemoglobin values lower than the currently accepted normal standards.

It has been assumed that the normal red blood cell counts and hemoglobin values do not vary with increasing age.[1a] We have tested this hypothesis by dividing our subjects into age groups. The results can be seen in table 2. There is a very little difference in the mean red blood cell count and hemoglobin level among the various age groups. Statistical analysis with use of the "t" test [11] did not indicate any significant differences. Thus it would seem that increasing age did not affect the red blood cell count or hemoglobin value. Hobson [15] likewise found that the hemoglobin value in older women was not significantly lower than the normal generally accepted for women.

TABLE 2.—*Red Blood Cell Count and Hemoglobin Level Findings According to Age Distribution*

Age, Yr.	Subjects, No.	Red Blood Cell Count, Millions/Cu. Mm. Mean	Red Blood Cell Count, Millions/Cu. Mm. Standard Deviation	Hemoglobin Level, Gm./100 Cc. Mean	Hemoglobin Level, Gm./100 Cc. Standard Deviation
11-19	121	4.37	0.420	12.61	0.91
20-29	255	4.39	0.265	12.61	1.15
30-39	142	4.35	0.393	12.47	1.03
40-49	89	4.32	0.396	12.48	1.14
50-69	56	4.35	0.334	12.55	1.07
Total	663	4.37	0.282	12.55	1.15

Several studies on adolescents have not shown consistent findings. Table 3 shows a comparison of our 11 to 19 year age group of women with similar groups in some of these studies. The 121 young women in this series were primarily students who came for school checkups, minor menstrual irregularities, or premarital examinations. Mugrage and Andresen [16] found an average red blood cell count of 4,660,000 and a hemoglobin level of 14.65 Gm. for a group of 95 adolescents 12 to 21 years of age seen in an outpatient department in Denver. Pett and Ogilvie [14] found an average hemoglobin level of 12.96 Gm. for 226 young women aged 13 to 19. Leichsenring and others,[6] studying 130 "health champions" ages 12 to 19 in a Minnesota summer 4-H camp, found a mean red blood cell count of 4,280,000 and a hemoglobin level of 13.0 Gm. In a group of randomly selected Minnesota high school girls [17] they found a mean red blood cell count of 4,150,000 and a hemoglobin level of 12.21 Gm. Our figures are similar to those of Leichsenring and others.[18]

TABLE 3.—*Comparison of Studies of Red Blood Cell Counts and Hemoglobin Level Findings in Adolescent Girls*

Study	Subjects, No.	Mean Red Blood Cell Count, Millions/Cu. Mm.	Mean Hemoglobin Level, Gm./100 Cc.
Present study	121	4.37	12.61
Mugrage and Andresen[16]	95	4.80	14.46
Leichsenring[17]	258	4.15	12.21
Leichsenring and others[6]	130	4.28	13.00
Pett and Ogilvie[14]	226	...	12.96

The type of symptoms, complaints, or diagnoses which brought these objectively selected 663 "normal" women to the doctor fell into three classifications (table 4). One group of 84 came without complaints, symptoms, or positive physical and laboratory findings. These included women who

had come for premarital examinations or college or school examinations, adolescent girls who came at the request of parents, or women who considered themselves healthy and wanted to remain so. The second group was made up of normal women with physiological variants who, although normal by history and physical and laboratory examination, had complaints arising from anxiety, tension, or fatigue. The third group consisted of those presenting gynecologic complaints, i. e., dysmenorrhea, irregular menses (with an interval longer than 28 to 30 days), menopausal symptoms, leukorrhea (other than gonorrhea), cystocele, rectocele, retroversion, cervical erosion, premenstrual tension, and sterility. Actually, in this latter group there was considerable overlapping with the group showing only anxiety, tension, or fatigue. These three groups did show a difference in the mean red blood cell count and hemoglobin values, although all were "normal" when objectively appraised.

The group of "normal" women without complaints had a significantly higher mean red blood cell count and hemoglobin level than did the group with physiological variants as determined by statistical analysis using the "t" test.[14] The values in this group were also significantly higher than in the group with physiological variants and the group with gynecologic variants considered together. However, the values in the normal group alone were not significantly higher than in the gynecologic variant group alone. The values in the group with physiological variants were significantly lower than in each of the other two groups and also lower than in the other two groups considered together. It appears that, although women who present only complaints originating from anxiety, tension, or fatigue are normal to the usual physical and laboratory examinations, as a group they tend to have lower red blood cell counts and hemoglobin values than those who have other types of complaints or no complaints at all.

TABLE 4.—*Symptoms, Complaints, and Diagnoses in Six Hundred Sixty-Three Women*

Type	Subjects, No.	Mean Red Blood Cell Count, Millions/Cu. Mm.	Mean Hemoglobin Level, Gm./100 Cc.
"Normal"	84	4.44	12.79
Normal with physiological variants	293	4.33	12.46
Normal with gynecologic variants	286	4.38	12.55

Summary and Conclusions

We believe this to be the first time that a physician with well-trained laboratory personnel has analyzed consecutive case reports to obtain an adequate sampling so that a statistical determination of red blood cell counts and hemoglobin levels in normal women could be made. A sampling of 663 charts from 7,300 consecutive case records showed the mean or average red blood cell count to be 4,370,000 per cubic millimeter, with a range between 3,810,000 and 5,030,000. The mean hemoglobin level was 12.55 Gm. per 100 cc. with a range of 10.2 to 14.8 Gm. These are both significantly lower than the standards quoted as normal by hematologists and textbooks. Using the "t" test, there was no significant difference in the red blood cell count and hemoglobin value according to age grouping. These findings should be of value in both research and clinical medicine.

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The statistical analysis for this study was done by Mr. A. D. Kozanowski.

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INTERNAL AUDIT IN THE DEPARTMENT OF MEDICINE OF A COMMUNITY HOSPITAL

TWO YEARS' EXPERIENCE

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The medical audit here described was part of a program intended to evaluate and improve the quality of patient care in a hospital; the immediate question was the quality of the medical records. An auditing committee was formed to assign a numerical grade to each chart. The criteria were the accuracy and completeness of the diagnosis, the adequacy of the treatment, the adequacy of the progress notes, the use of consultation when needed, and the completeness of the physical examination. If a chart was given a mark below a critical level, the physician was notified and given the opportunity to review the chart with the auditing committee. The three members of the committee each had a tenure of three months. The fact that one member began and one ended service each month made it a group project; participation was a valuable experience and not an excessive burden. The medical audit has been effective in improving the medical records of the hospital. Staff members who have been doing good work can see that it is appreciated, and others are stimulated to improve.

The purpose of this report is to relate the practical experience gained in evaluating the quality of the medical records in a community hospital. This project was undertaken as part of a program to test various methods of raising the level of patient care in this type of hospital. It is one facet of a rather unusual long-distance affiliation which was established between Georgetown University School of Medicine and St. Mary's Hospital in 1952. A preliminary report concerning the fundamental approach and some of the early results of the program [1] and reports on the development of an adequate library [2] and the integration of the general practitioner into the program [3] have documented some of the ideas which have been explored.

Briefly, the general plan includes the employment by the hospital of a full-time director of medical education to supervise the program. The university sends teachers to the hospital for three-day visits every other week. These teachers hold conferences for the staff, make bedside rounds, and consult on the hospital facilities and services. The program is under the over-all supervision of the professor of medicine at Georgetown University, who makes periodic visits to the hospital in a consulting capacity. The educational program, has for the most part, been conducted by internists, and the emphasis has been placed on internal medicine. Practically all innovations have been tried out in the department of medicine and later, if successful, are incorporated in the other departments. The method of evaluating medical records which will be described in this report was started at the beginning of 1956 in the department of medicine. At the beginning of 1957, the departments of surgery, pediatrics, and obstetrics and gynecology instituted the procedure with appropriate modifications.

Lembcke [4] has defined the medical audit as the "evaluation of medical care in retrospect through analysis of clinical records." He further distinguished between the internal audit, "which should be carried on continuously by the hospital staff" in "evaluating the quality of medical care in individual cases," and the "outside audit, in which case an outside agency periodically tests the completeness and accuracy of the internal audit." In this sense, the methods to be discussed in this presentation constitute an internal audit conducted in the department of medicine.

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Development of the Medical Audit

Historically, Ponton [5] is usually credited with the introduction of the medical audit. He proposed a standard form which listed various statistics which the record librarian was capable of assembling for the most part. He intended that these statistics should form a basis for comparison of work performed by different departments from month to month. The work of the librarian was to be supplemented by a medical man in three instances, i. e., cases of infection, cases in which secondary conditions developed, and deaths. Various indexes have been proposed since that time to evaluate the quality of medical care.[6] Lembcke has concluded, however, as did Myers and others [7] and Eisele,[8] that "most of the indexes of quality used in the past are now out of date or otherwise erroneous because of lack of research in the field." [4] These indexes have been applied in one of two general ways: (1) the method of gleaning statistics from the chart by a nonprofessional person, and (2) the review of the

medical record by a physician or group of physicians. The first procedure has been subjected to extensive research recently by Myers, Slee, and Hoffman,[7] who have introduced the use of electronic devices to tabulate the statistics. The second device has been used by a number of hospitals [9]; according to Eisele [8] its "most serious handicap is that the usual medical audit consists largely of a collection of opinions of one individual, subject to all the inherent shortcomings of one individual." Lembcke attempted to overcome this objection by developing objective criteria by which a group of physicians might judge a limited area of medicine, i. e., female pelvic surgery.[4]

Method of Present Study

A number of factors were considered in deciding the general type of medical audit which would be most appropriate for our situation. Among these were the magnitude of the audit and the result which we wished to accomplish. The department of medicine consists of 105 beds in a 335-bed general hospital; about 2,700 patients are admitted to this department in one year. The patients are, for the most part, from the private practice of about 20 internists and 50 general practitioners. In establishing the medical audit, as in working out other projects of the hospital educational program, the primary object was to raise standards through the education of the staff. Thus, the statistical methods which employ nonprofessional personnel were not thought to be the most appropriate. It was felt that statistics gathered in this manner point out general areas of deficiency in hospital performance or individual physician performance but do not seem to be refined enough to delineate deficiency in patient care in a manner that is sufficiently specific for our purposes. For example, with the statistical method one can determine the percentage of pneumonia cases in which a particular physician obtains an x-ray of the chest; this can then be checked against an acceptable standard. This is useful information and might serve to indicate which physicians need further education concerning the use of the chest x-ray in cases of pneumonia. A system was preferred, however, which would indicate the specific instances (physician, patient, and circumstance) in which an x-ray should have been requested. This information seemed more useful from an educational viewpoint.

The review of the chart by physicians offered an opportunity for the staff to actively participate in the audit. In other educational projects which have been carried out successfully in this hospital, this dynamic aspect was an important factor in their success. It was decided that at least in the beginning it would be well to review the records of all patients discharged from the medical service rather than to take any short cuts, such as spot-checking. This decision to some extent influenced the indexes which were devised. To check all charts is a time-consuming task, and the check points were kept as simple as was thought to be compatible with a worthwhile evaluation.

We believed that the diffuse nature of the illnesses treated in the department of medicine precluded the development of objective criteria for each disease. In lieu of this, it was proposed to have a committee of experts in internal medicine review each record and in this way attempt to evaluate the handling of the case. There are, however, a large number of general practitioners who admit patients to this service, and it was felt that this point of view should be represented. This was not done to establish a double standard of quality for this group but rather because these physicians have a sufficiently different type of medical practice that it might influence their care of a patient. For example, their use of consultants would certainly differ from that of an internist. At the same time, to be certain that the reviewers would be experts, only general practitioners who were particularly adept at internal medicine were chosen for the committee. In order to avoid the objection that such an audit constitutes the opinion of one person, an attempt was made for it to be a group project, with provisions for continuity of the personnel on the committee. Accordingly, three men were chosen to serve on the audit committee. Each man had a tenure of three months; one member began and one ended service each month. One of the three physicians was a member of the department of general practice. In order to establish continuity of thought, the chairman of the committee was appointed for one year.

The members of the committee reviewed the records at their convenience, usually in the record room, and once a week they met to discuss certain records which the individual members had chosen. These selected records included all those below a certain arbitrarily chosen critical level, all those which were criticized for lack of consultation, and all those wherein the reviewer thought that a discussion was indicated to clarify a point which had puzzled him. These points were discussed by the group so that a uniform policy of marking was adopted. The following general questions were posed to frame the thinking of the committee in arriving at a numerical grade for each chart: 1. Was the diagnosis accurate, complete, and substantiated?—25 points. 2. Was the treatment adequate?—25. 3. Were the progress notes adequate?—25. 4. Was consultation obtained if indicated?—15. 5. Were the pelvic and rectal areas and eyegrounds examined?—10.

Factors of Evaluation

Diagnosis.—The Standard Nomenclature of Diseases and Operations is used in this hospital and has been for several years. The staff has been edu-

cated to a certain extent to the concept of making diagnoses which include the anatomic and etiological aspects of the disease, rather than symptoms alone. In answering question one, however, it was apparent that years of practice had established the custom of diagnosing only one pathological condition. The audit committee soon formed the opinion that the diagnosis of one clinical entity seldom covered the important aspects of a medical patient's illness. Thus, in a patient with a myocardial infarction the additional diagnoses of hypertension, shock, or congestive failure were frequently needed to adequately describe the patient's illness. On the other hand, one could easily make a dozen or more diagnoses in many instances, and yet the committee did not feel justified in penalizing a physician for failure to mention an inconsequential finding. Nor could one always confine the diagnoses to those clinical situations which were current, e. g., pneumonia in a patient who previously had a myocardial infarction is more significant than an uncomplicated case of pneumonia. In summary, the committee decided that the diagnosis was adequate if all the clinical entities which were pertinent to the illness which necessitated hospital admission were documented in the record.

The second factor taken into consideration under the first question was the confirmation of the clinical diagnosis by what the medical audit committee considered to be the usually accepted means. This might take the form of properly documented statements in the medical record of observations made on physical examination, consultation, and laboratory or x-ray procedures as might be indicated by the particular case. Thus, a diagnosis of pneumonia might require an x-ray of the chest; a suspected myocardial infarction indicates the necessity of having one or more electrocardiograms taken. It was apparent that compliance with suggestions relevant to this point aided the physician in clearly reasoning out the situation. The following case illustrates this point:

A 35-year-old man was admitted to the hospital with jaundice of two weeks' duration. There was no history of ingestion of chlorpromazine (Thorazine) hydrochloride or exposure to chemicals. His health had been normal prior to the onset of the jaundice, which was accompanied by anorexia and general malaise. At physical examination, the jaundice was noted and the liver edge was felt about 2 fingerbreadths below the costal margin. Otherwise, the findings were within normal limits. Laboratory findings were within normal limits except for a serum bilirubin level of 10 mg.%. The alkaline phosphatase level was 20 Bodansky units per 100 cc., and the thymol turbidity was 4 units. After one week in the hospital, during which time the disease appeared to be stationary, the patient was discharged with a diagnosis of infectious hepatitis.

The committee marked this as below the critical level because it was felt that obstructive jaundice had not been ruled out. Within a month, the action of the committee was justified by the finding of carcinoma of the head of the pancreas on surgical exploration of the abdomen.

Treatment.—Question 2 concerns the adequacy of treatment. The implications here are rather obvious. In actual practice, one comes on many controversial conditions in evaluating this point. This committee took a rather liberal viewpoint in accepting a physician's opinion of proper treatment. Thus, it would not take issue with the physician who used anticoagulants in treatment of the so-called good-risk patient with myocardial infarction but would subtract credits for the use of penicillin in an infection due to Escherichia coli. The committee took the viewpoint, however, that when the treatment was not the only one that was indicated the physician's reason should be clearly stated in the progress notes. In general, however, deductions were seldom made on this point. It was felt that 25% of the total gave too much weight to treatment.

Progress Notes.—Question 3, "Were the progress notes adequate?" was so phrased in order to evaluate the physician's direct responsibility to write notes on his patient's chart. Ordinarily, the interns and residents write the history, physical examination, and progress notes. The attending physician is responsible for the entire chart and thus for those parts of the record which the interns and residents write. Because of this, the physician must indicate any corrections that are needed in these notes. In addition, under ideal conditions, it was felt that the attending physician should write an admission note, an appraisal note, and a discharge summary. In the admission note, the attending physician should add to the intern's history the information that he has gleaned through previous contact with the patient. He thus adds certain information which is usually not available in the history. The appraisal note is a brief synthesis of all relevant information on the patient's illness, including laboratory procedures, therapy, diagnosis, and significance of the illness to the general life situation of the patient. This note should be written after the patient has been in the hospital for three to seven days. The summary note gives the attending physician an opportunity to draw all the loose ends of the case together and take advantage of his previous clinical experience to synthesize a diagnosis. During the first two years after the audit was inaugurated, the hospital had a smaller number of interns than usual. In order to keep the intern's case-load at the optimal number, about half of the patients were not assigned to the house staff. The visiting staff was responsible for writing up the entire chart on the unassigned patients and, in order to prevent undue hardship on this group, it was decided that of the three notes listed above only the admission note would be required. In addition, the attending physician was expected to add notes which were needed to supplement or amend the progress notes of the house staff.

It was soon apparent that admission notes were a rarity at this hospital. Progress notes were fairly frequent but were, for the most part, uninformative. These notes often stated that the patient was "doing fine" or "continuing to improve," or they consisted of a repetition of some laboratory or x-ray finding which was formally reported in another part of the chart. Many cases which were actually well managed appeared to be poorly handled because the physician's reasoning processes were not recorded in the chart. It was pointed out to the staff that these notes were considered to be adequate when a person unfamiliar with the patient (i. e., a committee member) could get a fair grasp of the case, including its course and management, by reading the chart.

Consultation.—Question 4, concerning the necessity of consultation, was perhaps the most difficult one to answer. Most hospitals attempt to formulate some regulations concerning situations which require consultation. The rigidity of these regulations probably bears a roughly inverse relationship to the quality of the hospital's staff. The better physicians need no written rules to force them to ask a consultant to see their patients; rules imply mediocrity and lead to a uniformity of action, which is not necessarily good. The following regulations for consultation on medical patients at this hospital were devised: "Consultation shall be obtained with any recognized internist for all patients whose cases are undiagnosed after five days in the hospital or for those patients with diagnosed cases who are not making suitable progress within one week, except those with some terminal conditions. Consultation shall also be obtained in all of the following cases: coma, meningitis, and arterial occlusion, including coronary occlusion with myocardial infarction when the latter is complicated by shock, failure, or arrythmia."

The difficulties which had been experienced at St. Mary's Hospital in attempting to formulate rules for consultation are well expressed in the following memorandum prepared by the Commission on Accreditation of Hospitals: "In the case of other consultations, those in which serious illness, poor surgical risk, or obscure diagnosis is involved, it seems almost impossible to specify the conditions under which such consultation shall be required. In general, it is the conscience of the attending physician which will determine whether or not a consultation is needed." [10] Furthermore, it is within the domain of the hospital to decide if such a consultant is qualified. This prerogative is delegated by the hospital to the audit committee. When points were deducted for consultation it was customary for the entire committee to discuss the matter.

Pelvic, Rectal, and Eyeground Examination.—Question 5, concerning pelvic, rectal, and eyeground examination, is rather obvious. These three items stood out as indexes by which one could spot-check for completeness of the physical examination.

Grading.—After an initial experience gained by a so-called "dry run," the mark of 75% was adopted as a passing grade. It appeared that the majority of records were above this mark, and the ones which fell below stood out as being seriously deficient. A letter was written to the physician if he was assigned a mark below 75%. This letter indicated the score attained and the items for which points were deducted. The physician was offered the opportunity of reviewing the chart with the audit committee, and a number of interviews have been conducted.

Results

On evaluation of the experience gained with this mechanism after two years, several points seemed clear. In general, it was apparent that a group of experts could objectively judge the work of an individual by using the criteria outlined. In the great majority of instances, this group of auditors was satisfied that the mark which they assigned to the chart by rigidly adhering to these objective criteria was, in their best judgment, a fair mark. In a few instances, it was apparent that by following these criteria an unjustly low mark would be assigned to the chart; somewhat less frequently a poor chart would receive a passing grade. To the extent that this exists, the audit is imperfect. Thorough discussion of these discrepancies by the committee at weekly meetings helped to clarify and unify the interpretation of the criteria. Where it was indicated, the interpretations were modified. In spite of this, however, there was always room for the exercise of good judgment on the part of the auditor. The criteria of an audit, like all man-made laws, are only the tools of justice.

In order to insure the fact that the marks would be comparable, the audit committee did not make major changes in the criteria during the first two years. Only one major change will be instituted at the end of two years. As indicated previously, it was found that 25% of the total credits given to treatment is too high. It was seldom that points were deducted for this item, and, because it was weighted too heavily, a certain number of poor charts received falsely high marks. By reducing the points allowable for treatment, the audit becomes essentially a critique of the diagnostic examination together with its proper recording on the chart.

At the end of each year, the average of each physician's marks was sent to him along with an indication of the distribution of marks in the entire group. With this information he could compare his average with that of the other members of the staff. He was also given a breakdown of his marks so that he was made aware of the number of poor grades as well as the failing grades. Each physician was

also given the privilege of reviewing his marks in detail at any time he so desired. In certain instances, the committee notified individuals of certain important findings which the doctor had apparently overlooked. This was done whenever the welfare of the patient was directly implicated, e. g., the report of a positive Wasserman test which was returned by the laboratory after the discharge of the patient from the hospital and so escaped the attention of the doctor.

On review of its work at the end of two years, however, the committee was not completely satisfied that these methods of informing the physician exploited the educational potential of the audit to the fullest degree. Although the physician was notified about his poor charts at the time of the patient's discharge from the hospital, he did not learn about borderline charts until the end of the year. More properly, he should be made aware of current trends in his work. In this way, the doctor would be more apt to seek the counsel of the auditors when the case was fresh in everyone's mind. Accordingly, it was recommended that letters be sent to the staff members not only for failing grades but whenever they had a poor chart. In addition, the recommendation was made that a summary of each physician's performance be sent to him quarterly rather than annually.

The active staff at this hospital consists of the junior, assistant attending, and attending staff. Promotions are made on the basis of merit as judged by a person's qualifications and degree of participation in the educational program. The physician's performance in the medical audit has become another objective criterion of merit. It is used to evaluate a staff physician's work along with his attendance at weekly departmental meetings, attendance and quality of performance on ward rounds, and the opinion of the department head. The medical audit has perhaps been even more useful, however, as a method of detecting inferior quality of work. In appraising the low marks attained in the audit, consideration was given both to the number of low individual marks and to the average mark. It was observed that a person might attain a passing average in spite of a number of low marks if the volume of his practice was large. This sort of situation might be just as undesirable as that of the person with a small volume of patients on all of whom marks were moderately low.

These yardsticks were used as a basis of instituting certain measures to improve the quality of the staff. Accordingly, at the end of the first year four physicians were placed on probation. A penalty of restricted admitting privileges was imposed by the board of the hospital on those physicians who were on probation in order to indicate to them the gravity of the situation. They were allowed to admit patients to the medical service only when at least 5% of the beds were empty. The work of two other physicians was found to be inadequate, and they were required to have consultation on all cases which they admitted. This exception was made because these physicians are elderly. One physician's work was borderline, and a letter was sent to him stating this fact. At the end of the second year there were indications of sufficient improvement in the work of two of the physicians on probation to warrant reinstatement of full hospital privileges. The work of one physician continued to be poor, but on investigation it was found that he had certain personal problems which might be amenable to psychotherapy. He was accordingly counseled, but for the protection of the hospital and his patients he was required to obtain consultation on all patients he admitted to the hospital. The fourth physician's work failed to improve, and he was dropped from the staff at the end of the second year. Three additional physicians were put on probation; one of these had been found to have a borderline record at the end of the first year, as was indicated previously. Five more staff members were sent letters indicating that their work was borderline.

Comment

The audit has been time consuming for the members of the committee. In spite of the fact that the indexes are general and the audit has been purposely kept simple, the review of each medical record represents a considerable effort. On an average, each member reviewed 192 charts in his three-month association with the audit committee. This could probably be decreased by spot-checking or considering only the records of patients who died. The extent to which this is carried out might depend to some extent on the need for an audit, i. e., the quality of the staff. St. Mary's Hospital is probably an average community hospital; the educational program is relatively young, and the committee felt that at least in the beginning the audit should be quite thorough and include every record. It should be pointed out also that the latitude allowed within the rather general framework of the indexes outlined can be regulated by the committee. For example, the averages of the members of the department of medicine for the second year ranged between 90 and 100. In view of this, the failing grade of 75%, which was determined at the beginning of the audit, was very liberal. Thus, at the end of two years not only the change in criteria mentioned will be made but a general tightening up of the tolerance allowed in interpretation of these criteria is expected. In this way, we believe, the mechanism of this audit allows for a gradual and continuous education of the staff.

Conclusions

In general, it might be said that the medical audit has been an effective means of improving the medical records in this hospital. Indirectly, we

believe that it has also improved the quality of patient care. There is a great deal to be accomplished in these matters as yet, and it will be a number of years before any plateau is reached; however, there is no doubt that significant gains are being made. The fact that the staff physicians know that their work is being observed has stimulated them to improve; by the same token, it has encouraged some men who have been doing good work for years to have someone appreciate this fact. Some few have not improved, and these have been handled on an individual basis.

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CLINICAL NOTES

SIMPLIFIED "CUT-DOWN" (VENOSTOMY) TECHNIQUE

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The purpose of this communication is to present a simplified method of performing a "cut-down" (venostomy). While the indications for the procedure are generally well recognized, the methods employed are often time consuming and cumbersome. Special instruments have been devised to facilitate its performance,[1] which, while undoubtedly helpful to the individuals skilled in their use, are not absolutely necessary and are not likely to be at hand in a real emergency.

The difference of this method from the accepted standard procedure[2] consists in making a longitudinal rather than a transverse incision and omitting the usual proximal ligature of the vein.

The details are shown in the accompanying diagrams. A transverse incision (fig. 1) results in an irregular wound distorted by the elasticity of the polyethylene tubing. The tubing itself is in danger of becoming kinked at the point of its entrance into the vein. The distortion of the vein at this spot makes a snug fit impossible, with a resultant leak of blood. A proximal ligature is necessary.

With a longitudinal incision (fig. 2), the tubing (or cannula) lies snugly and smoothly in the wound. There is no distortion of skin margins and no kinking of tubing. The part of the cannula or tubing outside the lumen of the vein compresses the vein proximally, so that, with the help of a small pressure dressing, complete hemostasis is achieved.

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In an emergency, a knife, one pair of hemostats, a few squares of gauze, and a bandage are all that is required. A bottle of infusion solution and a set of plastic recipient tubing are, of course, essential, but if no polyethylene or metal infusion cannula is available, an ordinary large-bore needle with its sharp point snipped off with scissors will do. Skin antiseptics, sterile drapes, and local anesthetics are all desirable but can be dispensed with.

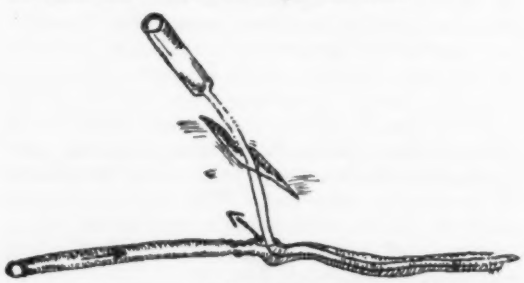

Fig. 1.—Transverse incision causing leak of blood. Proximal ligature is necessary.

Another advantage of this method is that there is much more room for the initial dissection within the margins of the longitudinal incision over the course of the vein. The danger of injuring the vein is minimized, and its complete accidental division is impossible. This results in a marked saving of time, especially in inexperienced hands. Further,

if the vein is not tied there is no need to continue an intravenous infusion longer than necessary just to keep the vein open. In most cases, a new cannula can be slipped into the same vein hours or even days after the original venostomy has been discontinued. No ligature material is left in the wound. The risk of vein thrombosis and wound infection is minimized.

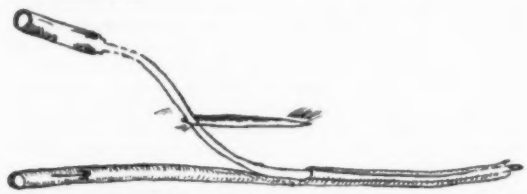

Fig. 2.—Longitudinal incision, with vein compressed by tubing and dressing. No ligature is needed.

Utilizing instruments and dressings available in any medical office, ambulance, or doctor's bag, it is possible to perform the procedure by the roadside, in the case of an automobile accident, or in the home of a patient, in the case of a severe hematemesis, vaginal bleeding, extensive burns, or any other accident or disease in which rapid fluid replacement is indicated. This may be of great importance during or after an enemy attack with nuclear weapons or in emergency conditions of tornadoes, hurricanes, earthquake, and other natural disasters. When communications are disrupted and hospitals are destroyed or deluged with casualties, dependence on customary facilities may prove disastrous.

Summary

A modification of the usual technique of performing a "cut-down" (venostomy) for purposes of parenteral administration of fluid consists of making a longitudinal rather than a transverse incision. Advantages of this method include saving of time and the necessity for a minimum of equipment.

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AGRANULOCYTOSIS RESULTING FROM METHIMAZOLE (TAPAZOLE)

REPORT OF THREE CASES

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Since the introduction of methimazole (1-methyl-2-mercaptoimidazole; Tapazole), in 1949, it has been utilized as a potent antithyroid drug. Stanley and Astwood [1] found methimazole to be approximately 100 times as active as thiouracil. In recent years it has almost completely replaced thiouracil and propylthiouracil in the medical treatment of hyperthyroidism. However, a number of toxic reactions have been observed with the use of this agent. The occurrence of agranulocytosis following the administration of this drug constitutes a real hazard to life. It is our purpose to direct further attention to this possible dangerous toxic effect of methimazole by reporting three instances of agranulocytosis induced by this drug, one terminating fatally.

Schultz [2] first described agranulocytic angina, an apparently new disease, in 1922. Since then many persons have died after the ingestion of medicaments prescribed for such diseases as hyperthyroidism, arthritis, cardiovascular diseases, allergic diatheses, epilepsy, and the psychoses. Kracke [3] first suggested a chemical or drug etiology rather than some infectious or other disease factor to explain this phenomenon. He concluded that the common factor producing the toxic reaction in many of these drugs was the presence of the benzene ring, particularly in combination with nitrogen or an amino or an imido group. Thiouracil has such a six-ring structure, but methimazole has a five-ring structure. Dameshek [4] theorizes that in many instances an abnormal immunological mechanism may be responsible.

Granulocytopenia, agranulocytosis, thrombocytopenia, and aplastic anemia have all been reported as hematological reactions to methimazole. Bartels and Sjogren [5] first reported the occurrence of granulocytopenia following the use of this substance in

the therapy of hyperthyroidism. Croke and Berry [6] recorded the first episode of agranulocytosis. A fatal instance of agranulocytosis was observed by Specht and Boehme.[7] Toxic hepatitis in association with agranulocytosis was noted by Reveno and Rosenbaum.[8] Aplastic anemia was the hematological abnormality presented in the report by Levine and Rosenberg.[9]

In a group of 116 patients given methimazole in preparation for surgery, H'Doubler and H'Doubler [10] detected one case of agranulocytosis and two of granulocytopenia. Donor bone-marrow injection combined with cortisone was credited by Ainsile and Harley [11] in effecting recovery in a patient with agranulocytosis produced by methimazole. A number of episodes of granulocytopenia and thrombocytopenia reported by other authors [12] are evident in a survey of the literature.

Report of Cases

Case 1.—A 76-year-old female was referred for treatment of arteriosclerotic heart disease with associated severe congestive heart failure. The usual regimen of reduced physical activity, digitalization, low-salt diet, and mercurial diuretics was insufficient to control the severe manifestations of the heart failure. Consequently, administration of methimazole was begun in order to produce a hypometabolic state designed to lessen the load on the failing heart. Methimazole was given in a dosage of 30 mg. per day. In addition, mercaptomerin (Thiomerin) sodium was given at infrequent intervals, and procainamide (Pronestyl) hydrochloride was given to lessen myocardial irritability manifested by numerous premature ventricular contractions from several foci. With onset of symptoms of sore throat, fever, nausea, and vomiting a complete blood cell count was obtained, at which time the white blood cell count was 700 cells per cubic millimeter, with 100% lymphocytes present. The patient was hospitalized immediately.

Physical examination revealed an elderly, acutely ill female. Her temperature on admission was 104 F (40 C), the pulse 110 per minute with extrasystoles present, and the blood pressure 130/80 mm. Hg. There was diffuse redness and edema of the oropharynx, and rounded yellowish plaques were present on the remnants of the tonsils. The heart was grossly enlarged to the left, and a grade 2 systolic murmur was heard at the apical area. Small, moist rales were present in both lung bases. The liver was not felt, and no peripheral edema was noted.

The sternal marrow was extraordinary in several respects: 1. There was a complete absence of the granulocytic elements, and nothing resembling a myeloblast or more mature cells of the granulocytic series could be found. 2. There was a moderate increase in the amount of fat above the normal expected at this age, but megakaryocytes were present in normal numbers and showed good platelet formation. 3. A moderate increase in reticuloendothelial cells was found, and many of these cells appeared phagocytic, but no transition toward the myelocytic cells was detected. 4. Active normoblastic erythropoiesis was present. The marrow thus demonstrated a selective complete absence of granulopoiesis, with moderate increased reticulum cell activity but no damage to other constituents.

In spite of liberal administration of ACTH and the broad-spectrum antibiotics, there was no apparent change in the patient's condition. The white blood cell count ranged from a high of 850 cells to a low of 125 cells per cubic millimeter, all of which were lymphocytes. The patient died on the sixth hospital day, after developing evidence of bronchopneumonia.

Case 2.—A 73-year-old male had received treatment for arteriosclerotic heart disease with atrial fibrillation and congestive heart failure with a program of digitalis, diuretics, low-salt diet, and moderate restriction of physical activity, with excellent control of symptoms. Marked weakness, sweating, and weight loss in spite of a good appetite supervened, and the degree of heart failure increased. The clinical impression of hyperthyroidism was substantiated by a protein-bound iodine value of 10.1 mcg. (normal is 4-6 mcg.). Accordingly, methimazole was given in a dosage of 10 mg. three times daily in addition to more vigorous measures to control the heart failure. White blood cell counts were performed at weekly intervals for one month. All counts were within normal limits, a representative count showing 6,950 cells per cubic millimeter, with 56% segmented cells, 38% lymphocytes, 3% stab cells, 2% monocytes, and 1% eosinophils. During the sixth week of treatment with methimazole, the patient complained of a sore throat and slight fever. A white blood cell count at this time showed 1,050 cells per cubic millimeter, all lymphocytes. On blood smear no neutrophils could be found, but the platelets and red blood cells appeared normal. On physical examination the entire pharynx was diffusely reddened, but no vesicles were seen. The temperature was 100 F (37.8 C), the apical pulse 72, and the blood pressure 120/80 mm. Hg. The lungs were clear, and no peripheral edema was evident. ACTH and antibiotics were administered. The white blood cell count was 1,000 and 1,800 per cubic millimeter on the following consecutive days, with 100% lymphocytes present. On the fifth and sixth days of therapy the white blood cell count was 3,150 per cubic millimeter, with 6% and 27% neutrophils respectively. The symptoms of sore throat and mild fever had cleared completely at this time. On the seventh day of therapy with ACTH, a count of 6,700 white blood cells per cubic millimeter with 37% neutrophils was found, and therapy with ACTH was discontinued. Two weeks after onset of the agranulocytosis the white blood cell count had returned to the normal of 10,750 per cubic millimeter, with 54% neutrophils.

Case 3.—A 20-year-old female presented herself for treatment with the typical symptoms and signs of hyperthyroidism, including tachycardia (130 beats per minute), generalized tremor, enlarged thyroid gland, protein-bound iodine value of 23 mcg., and 24-hour radioactive iodine uptake of 94%. A decision to treat her medically with methimazole was made, inasmuch as she was adamant regarding surgery. Consequently, she was given 30 mg. of methimazole daily, with progressive increase in dosage to 50 mg. daily because of lack of response to the drug. Periodic white blood cell counts were within normal limits. Twelve weeks after treatment was begun the patient developed a severe sore throat accompanied by a temperature of 104 F (40 C). When the patient was admitted to the hospital, the white blood cell count was 600 per cubic millimeter, with 100% lymphocytes. The remainder of the blood cell count was normal.

The patient appeared acutely ill, with her temperature 105 F (40.6 C), pulse 160 per minute, and blood pressure 126/82 mm. Hg. The posterior pharynx was fiery red, with patchy white exudates present. The skin showed a maculopapular eruption over upper and lower extremities. Intravenously given hydrocortisone along with penicillin and tetracycline were administered, and there was rapid defervescence to a normal level within 24 hours. Although the patient appeared clinically greatly improved, the severe sore throat and marked leukopenia persisted for a period of five days. The white blood cell count varied from 400 to 1,250

cells per cubic millimeter during this time. On the sixth day a white blood cell count of 2,590 per cubic millmeter was evident, with 30% myelocytes, 1% band cells, and 2% polymorphonuclear leukocytes present. After this, the white blood cell count gradually increased to 11,350 on the 12th day, with a normal differential count. Bone marrow studies revealed a striking lack of granulocytes. Many adult lymphocytes were present. Erythropoiesis appeared normal. Megakaryocytes were plentiful, and the examination of the peripheral blood revealed abundant platelets. It was concluded that a striking maturation arrest of granulocytes at the myelocytic stage was present. Radioactive iodine has been subsequently administered to this patient.

Comment

In the early use of methimazole, skin manifestations were observed as the primary sensitivity reactions, with an over-all incidence of 6 to 7.5%.[5] It is known that hematological reactions have a much lower order of incidence, although it is impossible to state with accuracy the exact degree. Inasmuch as sensitivity to methimazole is considered to occur entirely on an individual basis, it appears unpredictable. The size of the dose of drug administered apparently has no influence on the development of agranulocytosis.

In agranulocytosis, the prostration may be extreme, with high fever and chills, and symptoms of a generalized infection seem evident. The patient may appear moribund when these clinical features are added to those present from the underlying thyrotoxicosis. The bone-marrow study generally reveals partial or complete absence of granulopoiesis, or frequently there is evidence of maturation arrest of the granulocytes. This arrest may be present alone or with selective depression of other cellular elements.

There is general agreement that heroic therapy is necessary in this type of patient, primarily with the adrenal steroids and with sufficient antibiotics to prevent sepsis. With rapidly developing anemia transfusions are indicated, especially if there is a positive Coombs test. In the presence of marked thrombocytopenia, fresh blood transfusions in plastic bags may be of great value.

Most authors recommend that white blood cell counts be performed routinely at frequent intervals to aid in the early detection of leukopenia in order to forestall the occurrence of agranulocytosis. However, there is no unanimity of opinion that this is a valid assumption. On the contrary, Young [13] argues that frequent blood cell counts are neither necessary nor informative. His thesis is that the peripheral blood reflects changes taking place in the marrow only after the changes in the marrow are far advanced. Therefore, as previously indicated by Croke and Berry,[6] there are two considerations in this regard: (1) whether agranulocytosis occurs with sufficient frequency to warrant expenditure of the additional time and expense involved, and (2) whether frequent blood cell counts will anticipate the onset of agranulocytosis. Although an answer to these questions is not clear in the light of our present knowledge, it appears prudent for the present time to advocate frequent blood cell counts during administration of methimazole.

Summary

In three cases, agranulocytosis followed the administration of methimazole (Tapazole). Frequent performance of white blood cell counts is advisable during the administration of methimazole, although it is not certain that this measure will anticipate the possible production of agranulocytosis by this drug.

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DIAGNOSTIC PROBLEMS

FEVER, COUGH, AND PAIN IN RIGHT LOWER COSTAL REGION

Clinical Pathological Conference (PM 325-54), Dec. 5, 1957, from the Department of Pathology and the Hektoen Institute for Medical Research of Cook County Hospital, Chicago, presented for publication by Daniel S. Kushner, M.D., and Paul B. Szanto, M.D.

Clinical Data

A 35-year-old woman was admitted to Cook County Hospital on March 3, 1954. Eight weeks before admission, she developed slight nausea, anorexia, and fatigue. Five weeks before entry, she also complained of muscle aches and pains, fever, and drenching night sweats. One week later, she began to cough a half cupful per day of thick, yellow, "sweet tasting" sputum. At the same time she developed a constant, dull pain in the right lower anterior portion of her chest, which was aggravated by cough and deep respiration and radiated to the right upper abdominal quadrant. She had been bedridden for three weeks because of weakness, and had noted two or three watery stools daily, without blood or mucus. She had suffered a weight loss of 30 lb. (13.6 kg.) in two months; she had been addicted to heroin for six months; she used alcohol in moderation; and she had had some dizziness in the two weeks before admission.

Physical examination revealed an acutely ill, emaciated, but well-developed woman. Her blood pressure was 128/60 mm. Hg, pulse 108 per minute, temperature 101.8 F (38.7 C). Dulness to percussion, decreased tactile and vocal fremitus, and diminished breath sounds were noted over the lower half of the right side of her chest. There was tenderness and guarding of the right side of the abdomen, where liver dulness was percussed 2 fingerbreadths below the costal margin. Multiple needle marks were present on the forearm. The remainder of the physical examination was normal. Her hemoglobin level was 46%, erythrocyte count 2,390,000 per cubic millimeter, leukocyte count 6,500 per cubic millimeter, hematocrit 24%, and sedimentation rate 27. Her nonprotein nitrogen level was 22 mg. per 100 ml., total protein 6.7 Gm. per 100 ml., phosphorus 4.6 mg. per 100 ml., chloride 89 mEq. per liter, sodium 121 mEq. per liter, potassium 4 mEq. per liter, alkaline phosphatase 6.6 Bodansky units, and icterus index 8. The reaction to the Kahn test was unsatisfactory, but the Wassermann reaction was positive. Her sputum was negative for acid-fast bacilli on smear and culture. Stools were negative for ova and parasites.

She continued to complain of pain in the right lower portion of her chest, and she had a persistent tachycardia. A tuberculin skin test (1:100) was negative at 24 and 48 hours. The patient's course was rapidly downhill in spite of blood transfusions and administrations of fluids parenterally, vitamins, and penicillin, and she died nine days after admission, and nine weeks after the onset of her symptoms.

Clinical Discussion

Dr. Frederick Steigmann: This patient's nausea, anorexia, weakness, muscle aches and pains, fever, and sweats could have resulted from many conditions, and suggest systemic toxicity from infection. The prominent cough and expectoration point to pulmonary involvement, such as bronchiectasis, lung abscess, carcinoma of the lungs with abscess formation, or a complicated type of pneumonia. The thoracic pain, radiating to the right upper abdominal quadrant, could be explained by disease of the lower lobe of the right lung, with involvement of the diaphragm, but she did not have a long-standing cough and copious sputum as one would expect with bronchiectasis. She gave no history of antecedent pneumonia, or aspiration of foreign material, which could have led to acute lung abscess. She was rather young and had a very short history for a bronchogenic carcinoma. Among the inflammatory pulmonary diseases, one would have to consider tuberculosis with pleurisy. Whatever the cause, the fulminating course is more consistant with infectious than neoplastic disease. The absence of clubbing of the fingers could be explained either by the short duration of the process, although clubbing may appear rapidly in a patient with an acute lung abscess, or by the possibility that the pulmonary involvement was secondary to another disease.

Since she was a heroin addict, one must consider such infectious conditions complicating addiction as bacterial endocarditis, malaria, and homologous serum jaundice. None of the manifestations of en-

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docarditis or malaria were present. The onset of homologous serum jaundice in heroin addicts may show atypical features. More importantly, the patient may have become infected through self-administered intravenous injections, with resultant staphylococcic infection and generalized pyemic abscesses.

In view of the history of diarrhea, one must consider colitis and enteritis, with secondary involvement of the liver, which may produce hepatic tenderness and low-grade fever. Occasionally cholecystitis causes symptoms referable to the chest, but this could not explain the cough and expectoration.

All of the symptoms and physical findings suggest two or three conditions which could explain both the abdominal and pulmonary manifestations. In order of their frequency these would be (1) amebiasis; (2) pyogenic abscesses of the liver; and (3) fungus disease. In the United States, the incidence of intestinal amebiasis ranges from 5 to 30%. Most amebic carriers are asymptomatic. Patients with amebic liver abscess may give no history of diarrhea, and frequently no amebas are demonstrable in the stool. As a rule, the patient with active amebic liver abscess has a gradual onset of progressive nausea, anorexia, and fatigue. If the abscess involves the diaphragm, pleura, and lung, the patient may develop pain in the right lower portion of the chest, aggravated by cough, and a profuse expectoration of sputum. The incidence of liver abscess in clinical nonfatal cases of amebiasis ranges from 1.8 to 5% in various communities.[1] If the fatal cases are included, the incidence of liver abscess varies between 5 and 38%.[2] Hematogenous spread of Entamoeba histolytica to the lungs occurs rarely. The majority have a huge abscess in the liver which extends directly through the diaphragm to the pleura, and then to the lung, producing a contiguous abscess in the lower lobe. It may extend directly into the lung to involve a bronchus, causing profuse expectoration of purulent material, or an empyema may form first, which later penetrates a bronchus and produces expectoration. This would explain this patient's chest pain and expectoration. The yellow sputum described by the patient is atypical for amebic abscess of the lung. Characteristically, the sputum of amebic lung abscess is variously described as resembling chocolate, anchovy paste, or apple butter in color and consistency. The sputum frequently contains liver tissue and blood, and therefore has a brown color, but yellow sputum may occur in amebic lung abscess, in the presence of associated secondary bacterial infection.

The severe weight loss, drenching night sweats, and muscle aches and pains resembling arthritis can occur with amebic liver abscess. The sputum contains amebic cysts or trophozoites in 70% of patients with amebic liver abscess, if it is repeatedly examined. In the absence of such confirmatory evidence, amebic lung abscess may masquerade as tuberculosis, pneumonia, bronchiectasis, or pyogenic lung abscess. Most importantly, these patients die if they are not treated specifically with emetine. Emetine therapy is so effective that it can be used as a diagnostic test. Within 48 to 72 hours after initiation of specific treatment, these very ill patients begin to improve.

With regard to other diagnostic possibilities, pyemic (hematogenous) abscess of the liver is half as frequent as amebic abscess. It is secondary to a systemic infection, and usually has a more dramatic onset; the patient is more acutely ill, and has a temperature as high as 106 F (41 C), but the remaining symptoms and signs may be similar. Fungus infection would seem unlikely, in the absence of any history of residence in an endemic locality, and with no dermatological or other systemic involvement. The possibility of a necrotic primary carcinoma of the liver, which extended upward into the lung, must be considered. This patient was an alcoholic and her liver may have been cirrhotic, as a background for development of hepatocellular carcinoma. However, the alcoholism and narcotic addiction would also have contributed to malnutrition and, therefore, to the development of amebic liver abscess. The normal liver is not as susceptible to amebic infection as is the liver which has already been damaged by infection, alcoholism, or malnutrition. I, therefore, would conclude with the probability of amebic liver abscess, secondarily involving the lower lobe of the right lung.

Dr. Irving Greenberg: A roentgenogram of the abdomen shows distended loops of small and large intestine, with opaque areas suggesting fluid between the loops. The properitoneal fat line is obscured, also indicative of intraperitoneal fluid. The liver is enlarged. There is a small oval density over the margin of the ileum.

Dr. Steigmann: If this were peritoneal exudate, one would have to consider the possibility of a subdiaphragmatic abscess, due to perforation of the appendix or a peptic ulcer. A pylephlebitic abscess of the liver, secondary to intraabdominal suppuration, could rarely also cause hepatic and subdiaphragmatic abscess and perforate through the diaphragm to produce pleural involvement.

Dr. Greenberg: The chest film in the recumbent position shows a homogeneous density in the lower two-thirds of the right lung field compatible with pleural reaction (fig. 1). The right hemidiaphragm cannot be defined.

Dr. Steigmann: This chest film does not at all resemble the involvement of the chest after pleuropulmonary involvement by amebic abscess. It simply shows fluid filling the right hemithorax. In view of these films, I would be inclined to consider perforated peptic ulcer or appendicitis leading to peritonitis and to a subdiaphragmatic abscess, with resultant reactive pleurisy with effusion. Then the

cough and expectoration would have to be incidental. Radiologically, amebic abscess of the liver is usually associated with an elevated diaphragm.

Dr. Harold Schoolman: What is the magnitude of the anemia in amebic abscess?

Dr. Steigmann: Many patients have this type of anemia.

Clinical Diagnosis.—The clinical diagnosis was amebic liver abscess, amebic empyema with bronchopleural fistula, and amebic lung abscess.

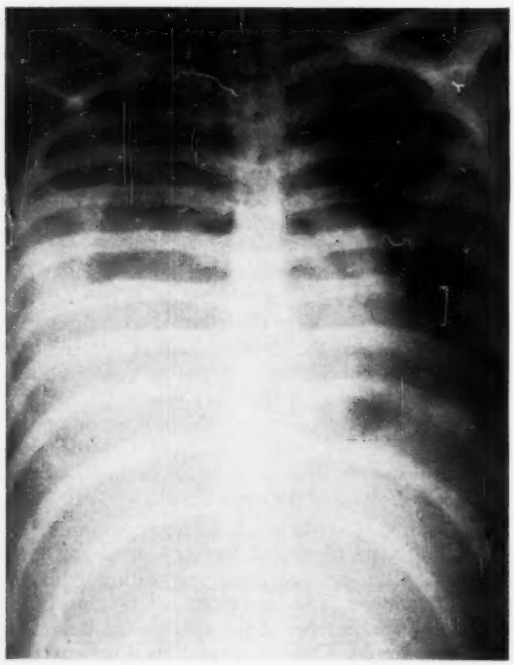

Fig. 1.—Homogeneous opacity occupying lower two-thirds of the right hemithorax.

Pathologist's Report

Dr. Paul B. Szanto: At autopsy the body was that of an emaciated woman. A sinus tract in the eighth intercostal space drained brown-gray material. This was not mentioned in the clinical history.

Dr. Steigmann: In view of this, one should reconsider the possibility of fungus infection.

Dr. Szanto: The peritoneal cavity contained 200 cc. of amber fluid. Focal necroses were present in the adrenal cortex. The liver was enlarged (1,900 Gm.). Its surface was smooth; the right subdiaphragmatic space was obliterated by dense fibrous bands which fixed the superior surface of the right lobe of the liver to the diaphragm. The upper two-thirds of the right lobe of the liver was occupied by a large solitary abscess, measuring 14 by 10 by 8 cm., which contained thick brown-green fluid (fig. 2). The wall of the cavity measured between 1 and 2 mm. in thickness and was shaggy in appearance, being covered by shreds of necrotic tissue. In addition to this large abscess, a smaller cavity, closely resembling the larger one and measuring 8 cm. in its largest diameter, was found in the left lobe, extending toward the inferior surface. This abscess had perforated into the peritoneal cavity, but the site of perforation was sealed off by the stomach and transverse colon.

The abscess cavity in the right lobe of the liver extended to the diaphragm, and perforated through a rent measuring 3 cm. in diameter, extending into the pleural cavity. The perforation resulted in the formation of two encapsulated empyemas. One in the lateral portion of the pleural cavity drained through the sinus tract in the eighth intercostal space already described. A second encapsulated empyema at the lung base contained 200 cc. of thick gray pus. E. histolytica was isolated from the fluid obtained from the empyema. The basal part of the lower lobe was occupied by a cavity measuring 5 by 4 cm., communicating with the encapsulated empyema at the base of the lung. This cavity contained thick brown fluid, and was lined by shreds of necrotic tissue. The abscess was drained by a bronchus, which explains the large amount of expectoration. The lung parenchyma adjacent to the abscess showed in some areas atelectasis, in other areas consolidation, with the histological appearance of a chronic unresolved pneumonia. The remainder of the lung showed edema and congestion. The homogeneous opacity occupying the lower two-thirds of the right hemithorax was due to both the

Fig. 2.—Large solitary abscess cavity in lower portion of the right lobe of the liver.

lateral and basal empyemas, and the intrapulmonary abscess surrounded by consolidated and atelectatic areas of the lower and middle lobes.

Microscopically, the liver, remote from the abscess cavity, showed an exaggerated lobular pattern with enlarged portal fields infiltrated by acute and chronic inflammatory cells. The wall of the cavity consisted of necrotic hepatic parenchyma and, adjacent to the zone of necrosis, involved the com-

pressed liver cell plates. The abscess behaved like a tumor, causing pressure atrophy of the liver parenchyma. The wall of the cavity was heavily infiltrated by lymphocytes and macrophages (fig. 3). Trophozoites of E. histolytica were found chiefly at the border between the necrotic and the necrobiotic zones of the wall of the cavity.

All the other organs were essentially normal with the exception of the spleen, which histologically showed evidence of infectious splenitis. The small and large intestines were normal except for moderate hyperemia of the mucosa of the cecum. Extensive histological studies, however, failed to reveal any pathological changes.

Pathological Diagnosis.—The pathological diagnosis was hepatic amebiasis, with amebic abscesses in the left and right lobes of the liver; amebic empyema (right pleural cavity); and amebic abscess of the right lung.

Comment

Dr. Szanto: Amebiasis is transmitted by the cysts of E. histolytica, which are swallowed an ' pass through the stomach and duodenum. In the part of the small intestine where the pH is neutral or slightly alkaline, the cysts rupture, cytoplasm escapes (metacyst), and divides (metacystic trophozoites).[3] The trophozoites pass into the cecum where they may invade the mucosa, initiating the amebic tissue infection. Although the cecum and ascending colon are the most commonly and severely affected sites in the large intestine (the appendix being only rarely involved), the rectosigmoid is second in frequency and intensity of involvement in cases of intestinal amebiasis. The incidence of hepatic and pulmonary complications has been mentioned by Dr. Steigmann.

In the case under discussion, we are dealing with amebic abscesses of the liver and lung, without morphologic evidence of intestinal amebiasis. There is little correlation, if any, between the degree of severity of clinical activity of intestinal amebiasis and the incidence of hepatic involvement. In some instances the intestinal process is quiescent[4] and amebas cannot even be detected in the feces. In other instances, as in our case, the intestinal amebiasis has practically disappeared. In the so-called carrier state, clinical symptoms at the site of intestinal involvement are not infrequently absent. Nevertheless, it should be stressed that at the time of origin of the hepatic involvement, an active intestinal process must have existed. Therefore, amebic infections should be considered prominently in the differential diagnosis of conditions involving the liver and the right lower lobe of the lung. Whether or not active diarrhea is present, one stool examination for amebas is not enough, because they are hard to find. Several should be made at intervals of two or three days and, as in our case, even a complete absence of intestinal involvement, with negative parasitological findings, does not rule out the possibility of amebic abscess of the liver. This is important since even very ill patients respond well to specific therapy with emetine or chloroquine. In this case, the anorexia, muscle aches, and fever were evidence of amebic hepatitis and abscess formation, and the lower costal pain, cough, and expectoration were the result of pulmonary extension.

Three types of hepatic involvement of the liver (hepatic amebiasis) have been distinguished: (1) hepatomegaly associated with amebic enteritis; (2) acute amebic hepatitis; and (3) amebic liver abscess.

In patients with intestinal amebiasis, the liver is frequently enlarged and tender. Microscopic changes are nonspecific, characterized by a moderate degree of fatty metamorphosis and focal necrosis. E. histolytica has not been demonstrated in the enlarged liver.

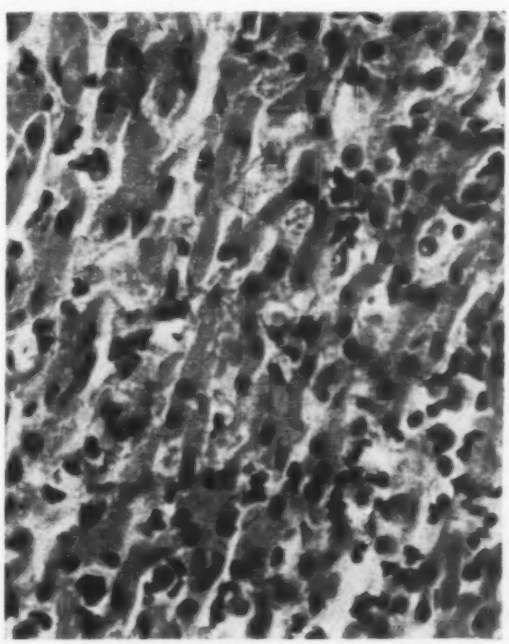

Fig. 3.—Infiltration of the wall of the abscess cavity and that of the adjacent compressed liver cell plates chiefly by mononuclear inflammatory cells.

Acute amebic hepatitis is also characterized by diffuse enlargement of the liver, which is tender, and in some cases the patient is jaundiced and has fever. It is assumed that this is due to direct invasion of the hepatic parenchyma by E. histolytica, which organisms reach the liver via the branches of the portal vein (E. histolytica erodes the small venules of the intestinal wall and is carried to the liver by the portal vein). Biopsy of the liver in this type of case reveals only nonspecific changes, characterized by focal necroses, liver cell damage, Kupffer cell proliferation, and infiltration of the

portal fields by acute and chronic inflammatory changes; it is now generally assumed that amebic hepatitis is a diffuse hepatic disease, preceding (but not necessarily followed by) amebic abscess.

Amebic abscess is the result of cytological destruction of the hepatic parenchyma, without accumulation of polymorphonuclear leukocytes and pus formation. Hence, it is not an abscess *sensu strictiori*. E. histolytica is found in only about 50% of cases of amebic abscess in the proximity of the abscess.[4] The amebic abscess may be single or multiple. Most single abscesses are located in the right lobe just below the dome of the diaphragm, less frequently near the inferior surface. From 10 to 30% of these abscesses involve the diaphragm,[3] resulting in empyema, or pulmonary abscess, drained by a bronchial abscess near the lower surface of the liver. The abscess may rupture into the peritoneal cavity, colon, gallbladder, or through the abdominal wall.

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COUNCIL ON FOODS AND NUTRITION

AWARDING OF RESEARCH FELLOWSHIPS IN CLINICAL NUTRITION

Ten fellowships for research in clinical nutrition have been awarded by the Nutrition Foundation, Inc., and the Council on Foods and Nutrition. They have been given in honor of Dr. Paul György, recipient of the 1957 Joseph Goldberger Award in Clinical Nutrition. A fellowship is granted to a medical student to permit him to carry on research in some phase of clinical nutrition during the nonacademic portion of the school year. Each grant consists of $600. Application is made by a senior investigator, and the fellowship is administered by him. The Council was impressed with the interest shown in these fellowships and had a difficult time selecting 10 from the many meritorious applications submitted.

This fellowship program is a part of the joint effort of the Nutrition Foundation, Inc., and the Council on Foods and Nutrition to stimulate staff members and students of schools of medicine to take a more active interest in the science of nutrition as an integral part of medical practice.

The 1958 fellowships have been awarded for the following research:

1. Vitamin B_{12} absorption in the ileum. Senior investigator, Robert F. Schilling, M.D., Department of Medicine, University of Wisconsin.

2. Urinary sulfate excretion following L-cysteine administration as a test for pyridoxine deficiency in human subjects. Senior investigator, Walter G. Unglaub, M.D., Department of Medicine, Tulane University.

3. The biological activity of the "bound" niacin occurring in corn. Senior investigator, William N. Pearson, M.D., Division of Nutrition, Departments of Medicine and Biochemistry, Vanderbilt University.

4. Nutrient intake and nutritional status of children with sickle cell anemia in search for aberrancy, characteristic of the disease. Senior investigator, Roland B. Scott, M.D., Department of Pediatrics, Howard University.

5. The effect of ethanol on the deposition of fat in the livers of rats maintained on a diet with varying quantities of tryptophan and the efficiency of choline in protecting against this type of fatty infiltration. Senior investigator, George H. Nelson, Ph.D., Department of Biochemistry, University of South Dakota.

6. To test the hypothesis that the primary effect in phenylketonuria is improper utilization of tryptophan. Senior investigator, Robert C. Balderidge, Ph.D., Department of Physiological Chemistry, Temple University.

7. The necessity for ascorbic acid in the formation of hydroxyproline in the guinea pig. Senior investigator, George T. Lewis, Ph.D., Department of Biochemistry, University of Miami.

8. The utilization of iron in heme synthesis. Senior investigator, Dan A. Reichert, Ph.D., Department of Biochemistry, the State University of New York.

9. The effects of hydroxyaspartate and carbamylhydroxyaspartate on the growth of weanling rats. Senior investigator, H. J. Sallach, M.D., Department of Physiological Chemistry, University of Wisconsin.

10. Study of nutrition in Guatemala under the staff supervision of the Institute of Nutrition of Central America and Panama. Senior investigator, Henry Sebrell Jr., M.D., Institute of Nutrition Sciences, Columbia University School of Public Health.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

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Subscription price . Fifteen dollars per annum in advance
Cable Address . . . . . "Medic, Chicago"

THE FIFTY-SIXTH ANNUAL REPORT ON MEDICAL LICENSURE

THE Council on Medical Education and Hospitals presents its annual compilation on medical licensure in this issue of THE JOURNAL. The report includes statistics concerning the medical examination and licensure of physicians in the United States and its territories and outlying possessions for the year 1957 as well as comparative figures for previous years. Also included is information pertaining to the current regulations for medical licensure. The officers of the examining and licensing agencies have been most cooperative in the submission of the current data and information essential in the compilation of a report of this nature, and for this assistance the Council is deeply grateful.

For the second consecutive year, the Federation of State Medical Boards of the United States has conducted an institute on the reevaluation of the licensing examination. The institute in 1958 covered four areas—bacteriology, pathology, anatomy, and surgery. These institutes take the form of annual workshops and have proved so successful that they will be continued in the future. The Federation takes cognizance of the radical changes in many aspects of education and practice and is making plans to be prepared for the effects such changes may have on the intent and interpretation of the various medical practice acts in the United States.

The Council's study makes reference to the Educational Council for Foreign Medical Graduates whose stated purpose is to provide information to foreign medical graduates, to translate and evaluate foreign educational credentials, and to test the foreign medical graduate's command of English and his basic knowledge of medicine. The program of the Educational Council in its entirety is included in a presentation by its executive director, Dr. Dean F. Smiley, which is also published in this issue of THE JOURNAL.

A new concept in medical licensure legislation is referred to in the description of the Healing Arts Act of Kansas.

Analysis of the statistical data and textual information reveals that in 1957 a total of 15,090 licenses to practice medicine and surgery were issued by 54 boards authorized by law to grant licenses to practice the art and science of medicine. The 15,909 licenses issued last year represented 7,604 granted after a successful written examination and 7,486 granted by reciprocity and endorsement of state licenses or the certificate of the National Board of Medical Examiners. There was an increase of 547 in the total number of licenses issued in 1957 as compared with the previous year. The number of licenses issued by examination increased 482 over the previous year, and the number issued by reciprocity and endorsement was increased by 65.

Licentiates of 1957 who received their first license to practice medicine and surgery during the calendar year and who represent additions to the medical profession numbered 7,455. In this group there were 1,014 foreign-trained physicians. In the same period there were approximately 3,500 deaths of physicians reported to the offices of the American Medical Association. Thus the physician population in the United States and its territories and outlying possessions was increased by about 3,900. Increases as compared with 1956 occurred in 25 states and Puerto Rico. Four states added more than 300 to their physician population; namely, Illinois, Ohio, Pennsylvania, and Texas.

Last year examination failures totaled 1,347. The total number of physicians examined was 9,116. The percentage of failures in the written examination of graduates from existing approved medical schools in the United States was 4.3%; of graduates of approved medical schools in Canada 11.3% failed; of the graduates of medical schools in the United States no longer in operation 25% failed; 78.6% of the graduates of unapproved medical schools at one time existing in the United States failed; the graduates of schools of osteopathy admitted to medical licensure examinations in several states had 16.9% failures; and 41.5% of the foreign-trained physicians examined for medical licensure last year failed. The total percentage of failures was 14.8%.

The report includes the preprofessional educational requirements of each licensing board, 37 boards indicated that the medical practice act

makes it possible to accept for licensure examination graduates of approved medical schools who have compressed the usual four years or 128 weeks of undergraduate medical study into less than four calendar years recognizing the experimentation that is now being instituted by some medical schools, 7 boards indicated that it would be possible to obtain an interpretation of the medical practice act to accept graduates under these new programs, 8 replied that it would not be possible, one board was doubtful, and one board made no reply.

Other data included in the study includes the boards requiring an internship for licensure; regulations pertaining to the registration of interns and residents, licensure on the basis of government credentials, and licensure on the issuance of temporary and limited licenses; the schedule of written examination dates and reciprocity meetings; citizenship requirements; medical license fees; and annual registration requirements.

The licensure of foreign-trained physicians is specifically referred to in the first section of the report and reveals that graduates of 233 foreign medical schools and 5 licensing corporations were examined for medical licensure in 1957 by 37 states —Alaska, Hawaii, and Puerto Rico. Graduates of medical schools in the Philippines, Iceland, 16 South and Central American countries, 28 countries in Europe, and 14 countries in Asia were presented at examinations. There were 2,299 foreign-trained physicians examined, of whom 1,345 passed and 954, or 41.5%, failed. More than 50 graduates each from the universities of Habana, Mexico City, Bologna, Rome, Munich, and Geneva were tested in 1957, and more than 25 graduates of 18 other schools were examined. In 1957, the increase over the previous year was 516. In a five-year period, the report points out, there were 7,509 foreign physicians registered, 6,557 after written examination and 952 by endorsement of credentials.

The second section of the Council's report pertains to the results of examinations and endorsement of credentials sponsored by 22 boards of examiners in the basic sciences. These boards have no licensing powers. A certificate of proficiency is issued that is a prerequisite to eligibility to practice. Such certificates were issued after written examination to 4,024 individuals, and by endorsement of credentials 2,283 certificates were issued. The failure percentage in the written examination for those reporting this information was 17.3. A candidate in applying for a basic science certificate is not required by law to reveal his school of practice. The figures given, therefore, include graduates of all schools of the healing art. Kansas was added to the group of states maintaining a basic science board last year.

The final section of the report deals with examinations given by the National Board of Medical Examiners. The examination of the National Board is given in three parts and may be taken during the course of training in medical school. The board's certificate is recognized by the medical licensing boards of the United States, the District of Columbia and the territories, with the exception of Florida, Arkansas, Georgia, Indiana, Louisiana, Michigan, North Carolina, and Texas. The purpose of the National Board is to administer an examination that may be accepted as an adequate qualification for a medical license. It is not a national licensing board. There were 3,027 licenses to practice medicine in 1957 issued by endorsement of the certificate of the National Board by 47 boards of licensure. A number of medical schools use National Board examinations for their own purposes. In some schools the entire second year class takes part 1 at the end of the second year; in others, part 2 serves as a comprehensive examination at the end of the fourth year; in still other schools both parts 1 and 2 are taken by all students.

PROGRESS IN HOSPITAL CARE

There is need for research in the type of care required by a patient in a hospital. This need led the staff of the Mayo Clinic and Rochester Methodist Hospital, with the support of several foundations, to build a test-tube building specifically designed for this purpose.

While the primary objective of a hospital is to provide the best possible care for each patient, one of the important associated considerations is to provide that care for as little cost as possible. Many factors influence the efficiency with which a hospital performs its primary purpose, namely, care of the patient. These factors include architectural design of the hospital building, type of construction, materials used, distribution and availability of needed medical facilities and supplies, and relationship between location of nurses' stations and patients. Obviously, these factors influence cost.

There are, of course, other important considerations. For example, not every patient in a given hospital requires the same degree and amount of attention and care. It is wasteful for a convalescent patient who will leave the hospital in a few days to occupy a bed which is surrounded with the equipment and personnel needed for a patient who is critically ill.

It is surprising to realize that many of the hospitals that have been built recently embody the same general characteristics of design and equip-

The developmental team planning for the staged-care of patients is made up of Drs. O. H. Beahrs, O. T. Clagett, R. T. Patrick, and H. W. Schmidt and H. C. Mickey, F. W. Schuster, and E. H. Weld.

ment that have been employed for many years. Although research has improved and expanded medical and surgical care of patients, little research effort has been directed toward the important problem of improving functions which are primarily the responsibility of the hospital. It is sincerely thought that such research is acutely needed and that it might be productive of significant contribution.

In December of 1955 a study was made by Mayo Clinic physicians to determine the type of nursing care required. The study included classification of over 1,100 patients, who represented a total of 7,519 hospital days during a one-week period in St. Marys Hospital in Rochester and Rochester Methodist Hospital. The professional staff, under whose care these patients were hospitalized for various types of medical and surgical conditions, divided the patient population into three categories: (1) those who were seriously ill and required constant care and observation, (2) those who required average hospital care, and (3) those who were well advanced in convalescence and needed only a minimum of attention. These observations revealed that constant care and observation was required 21% of the total "hospital days," average attention was necessary 59% of the time, and minimal convalescent care was adequate 20% of the time. Obviously, data of this type might reasonably influence type of hospital construction, distribution of personnel, placement of specialized equipment, and other practical considerations.

With the thought that hospital design can be more realistically related to the types of care required for patients having varying degrees and types of illness, it was decided to concentrate initially on design for the care of the acutely ill patient. It was thought that more direct control of the patient from the nurses' station was a prime requisite and could best be accomplished by a design which permitted constant direct observation.

This thought led to development of an architectural design which provides for the "special observation area" to be built in a circular form with private rooms on the circumference, and the nurses' station in the center. This design, which provides glass doors for each patient's room, permits direct observation of the patient by the nurse without aid of various technical devices, which are expensive in both initial cost and upkeep. Equally important may be the added security felt by the patient, who is able to see the nurses 15 feet away at the nurses' station. The use of single rooms permits care for both male and female patients in the same area.

A 12-bed unit, 67 feet in diameter, was completed in November, 1957. It is a temporary structure designed strictly for the purposes of research in hospital construction and function.

With this unit in use, the developmental team is continuing its planning for the staged-care of patients. A separate evaluation team is conducting controlled studies covering the following factors: time and motion, operational costs, and psychological reactions of patients, relatives, nurses, and doctors. Essentially, the studies cover the three basic elements in each stage of care, namely, equipment, personnel, and time.

In addition to the attempt to determine whether care in stages provides better care at less cost, it is hoped to prove whether the circle architecturally disciplines special observation and care to a greater degree than provided by conventional hospital design. The need for comparative studies is recognized, and they are under way.

Hospital costs are spiraling, and there is an increasing shortage of nurses. Private insurance carriers, Blue Cross, government agencies, and others have led the way in developing a program to assist the public in meeting hospital costs. The time is at hand when equal effort should be directed toward factors influencing these costs, and, at the same time, toward means of improving medical and nursing care while substantially reducing costs.

NATIONAL YOUTH FITNESS WEEK

Elsewhere in this issue (page 634) is a Proclamation by the President of the United States dealing with the fitness of American youth. There is little to add to the President's statement, except to point out his emphasis upon the "mental, social, spiritual, and physical fitness of the youth of America to the end that we may assure the continuing strength and well-being of our Nation."

This is not only an objective which every physician can heartily endorse; it is one toward which the medical profession has been working for many years, in cooperation with educators, public health officials, and civic-minded groups. The medical profession believes in and endorses the President's broad program of general fitness for living. It stands ready as always to make its contribution to the health and fitness of the nation, to which a large percentage of the daily work of the practicing physician has always contributed.

The medical profession welcomes consultation and cooperation with other agencies working toward the same objectives. Such objectives will not be achieved by a week of more or less hectic agitation, publicity, and speech making. It is hoped that such a week may serve the purpose of calling attention to the objective, but this achievement will rest upon hard, sound, constructive, year-round cooperation.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

"Only a man of character can be a good doctor." Hippocrates believed this and thousands of physicians today are proving its truth in their lives and in their medical practices.

It is no secret, however, that the good name of high-minded men and women has been, and is being, besmirched by the unethical practices of a few physicians without character. Whenever I read or hear about an incident involving evil medical practice, I take it as a personal affront to myself, my colleagues, and organized medicine. I detest such conduct and I favor prompt exposure and strong disciplinary action by medical organizations.

In medicine we have developed an excellent disciplinary system to deal with such cases. We also have suitable censure measures to apply to those who deliberately corrupt medical practice. Nevertheless, in my opinion these are not enough. The machinery may be in readiness, but it takes the action of physicians to turn the wheels.

I believe that the two real keys to this whole issue of adequate professional discipline are (1) our desire to recognize and expose dishonest medical conduct and (2) our willingness to take the necessary action, whomever it may injure. Without these two keys we cannot operate the disciplinary machinery nor can we "apply the rod" and rid our ranks of the "bad apples" that spoil the good name of all medicine and its ethical practitioners.

As a profession that is constantly living and working in a goldfish bowl, we cannot merely admit that there are a few physicians who are unethical and then hope that our public apologies will restore the public's confidence in us. All medical organizations, large and small, must demonstrate dramatically that medical doctors will not tolerate corruption and that the wayward will be punished according to the severity of their offense.

Your A. M. A. House of Delegates last year admonished all physicians to be alert to this potential problem of dishonest practices when it adopted the following sentence in Section 4 of the new Principles of Medical Ethics: "They (physicians) should expose, without hesitation, illegal or unethical conduct of fellow members of the profession."

If we do anything less, we make a mockery of this sentence, this Section, and our entire set of Principles. If self-surveillance of the profession is not to be replaced by an outside agency, we must be sufficiently interested and willing to police our own ranks and to set due discipline.

Generally, organized medicine's record on the exposure of illegal or unethical conduct has been good. It can be better—indeed, it must be better. I do not advocate any Gestapo system, for I believe that physicians are close enough in their work to recognize when and where improper conduct and practice exists and to know the proper punishment in each case.

Any reluctance to reprimand an erring colleague does irreparable harm to our profession. Any use of a whitewash brush or of a broom to sweep dirt under the rug imperils our disciplinary system. Any compromise with personal moral convictions damages the very character which makes a man or a woman a good doctor.

I believe that our conscience of medicine can be as important as our science and art of medicine. It gives us strength and prestige; it proves spiritual and practical values. It offers positive proof of the great earnestness and unsurpassed dedication of physicians to do right and to have all physicians above reproach in medical conduct.

Let us therefore continue to employ this conscience vigorously and effectively in our practice and in our disciplinary system just as we do our art and science in daily medical work.

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Atlantic City, N. J.

MEDICAL LICENSURE STATISTICS FOR 1957

FIFTY-SIXTH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The data in the following annual report on Medical Licensure Statistics have been compiled by the staff under the supervision of Mrs. Anne Tipner, Assistant to the Secretary of the Council on Medical Education and Hospitals.

Edward L. Turner, M.D., Secretary
Council on Medical Education and Hospitals

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INTRODUCTION

This report is the 56th annual compilation of information and statistics pertaining to medical licensure in the United States and its territories and outlying possessions by the Council on Medical Education and Hospitals of the American Medical Association. The report presents new developments in medical licensure and statistics for the medical examining boards of all states, the District of Columbia, Alaska, the Canal Zone, Guam, Hawaii, and Puerto Rico. The two homeopathic boards in operation, in Connecticut and Louisiana, had no new licentiates last year. Likewise, no physicians were licensed for civilian practice by the Virgin Islands last year. As in previous years, data are included pertaining to the 22 boards of examiners in the basic sciences and the National Board of Medical Examiners.

The compilations included in this study are based on data supplied by the examining boards and licensing agencies. The Council and THE JOURNAL express their appreciation to the officers of these boards who have cooperated in furnishing the information essential in the preparation of this report.

In the descriptive data reference is made to the total number of boards for which figures are reported. The figures include the examining and licensing boards in the territories and outlying possessions.

THE LICENSING EXAMINATION—REEVALUATION

The Federation of State Medical Boards continued in 1957-1958 its institutes on examinations. At the 1958 Congress on Medical Education and Licensure, institutes were held in four areas—bacteriology, pathology, anatomy, and surgery. It was demonstrated in these sessions that the idea of fitness testing can be applied to the preclinical sciences as well as to the clinical groups. Each of the four sessions had as chairman a physician with a background in the subject. The chairman proposed a series of questions designed to make the session a challenge to the examiners.

This was, indeed, the main objective of the 1958 institutes. After the first experience in 1957,[1] it was evident that one of the most desirable results of these conferences would be to awaken the examiner to the fact that he too was being evaluated to quite some degree by the person being examined. Thus, the type and quality of the examination itself becomes increasingly important. With four groups participating this year, the interest and attendance far surpassed that of the 1957 session.

The effort to reevaluate the licensing examination was in the beginning an experiment, but it was evident this year that it had also become an educa-

tional venture for the examiner. The institutes thus represent the first concentrated effort in over 40 years to have the licensing examinations related to a specific area of medical education. It was necessary, in the beginning, to look back to what the medical schools are doing in examining the students as well as to look ahead to the specialized areas. Perhaps in no other way would it be possible for many examiners to realize the complicated progress of modern medical education.

TABLE 1.—*Licenses Issued, 1957*

	Examination	On the Basis of Reciprocity and Endorsement	Total
Alabama	94	72	166
Arizona	20	93	113
Arkansas	81	27	108
California	554	1,613	2,167
Colorado	85	107	192
Connecticut	80	240	320
Delaware	13	15	28
District of Columbia	20	100	120
Florida	575	..	575
Georgia	233	97	330
Idaho	5	29	34
Illinois	366	249	615
Indiana	182	124	306
Iowa	136	59	195
Kansas	251	64	315
Kentucky	88	130	218
Louisiana	250	105	355
Maine	30	42	72
Maryland	310	195	505
Massachusetts	37	334	371
Michigan	277	211	488
Minnesota	208	158	366
Mississippi	125	32	157
Missouri	244	102	346
Montana	5	37	42
Nebraska	120	24	144
Nevada	..	15	15
New Hampshire	10	39	49
New Jersey	157	179	336
New Mexico	5	53	56
New York	278	1,097	1,375
North Carolina	214	75	289
North Dakota	15	8	23
Ohio	506	325	831
Oklahoma	174	40	214
Oregon	40	89	129
Pennsylvania	514	230	744
Rhode Island	37	33	70
South Carolina	81	38	119
South Dakota	16	32	48
Tennessee	174	96	270
Texas	375	218	593
Utah	20	45	65
Vermont	9	32	41
Virginia	254	120	374
Washington	70	142	212
West Virginia	24	75	99
Wisconsin	137	142	279
Wyoming	1	23	24
Alaska	5	16	21
Canal Zone	..	12	12
Hawaii	23	24	47
Guam	..	3	3
Puerto Rico	76	26	102
Totals	7,604	7,486	15,090

Reevaluation is mostly a matter of looking ahead. In 1959, at the Annual Congress on Medical Education and Licensure, the federation will sponsor four more institutes in physiology, biochemistry, preventive medicine and internal medicine. It is apparent now that with frequent changes in the membership of boards that annual workshops will be desirable, and it is anticipated that an "annual combined state board meeting" will be held every year preceding the Congress. The state boards will face the necessity for future consideration of some of the psychological and social science advances and methods which are now being introduced in some aspects of medical education—particularly in the selection of students. The federation has been aware, from the beginning of these studies, that some of the factors relating to fitness go back almost as far as the beginning of the education of the physician.

The federation will widen its interest in the fitness concept by understanding better the education of the physician and by improving its methods of approaching the determination of fitness. Anticipating that, in the years ahead, there will be some radical changes in many aspects of education and practice, the federation is making plans to be prepared for the effects such changes may have on the intent and interpretation of the various medical practice acts in the United States. A legislative committee has been formed in the federation to give counsel to state boards where changes are proposed in the state laws. One of the major objectives of this new committee is to prevent the introduction and passage of controversial and poorly conceived legislation.

The whole program of reevaluation is designed to remove the burden of educational testing from the responsibility of the examiners and to arrive at a point where the licensing examination will not have to be primarily concerned with educational backgrounds. The federation is cooperating in several ventures which will have a direct bearing on this—notably the Educational Council for Foreign Medical Graduates, Inc. However, its program of reevaluation is primarily concerned that the present 367 examiners on the various state boards become better qualified to examine and evaluate the candidates for licensure.

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES

After several years of planning, the Educational Council for Foreign Medical Graduates began operation on Oct. 1, 1957. Its sponsoring agencies are the American Hospital Association, the American Medical Association, the Association of American Medical Colleges, and the Federation of State Medical Boards of the United States. The Board of Trustees of the Educational Council includes two representatives from each of these organizations and two members representing the public at large. Its stated purpose is to provide information to foreign medical graduates, to translate and evaluate foreign educational credentials, and to test the

foreign medical graduate's command of English and his basic knowledge of medicine. Elsewhere in this issue, Dr. Dean F. Smiley, Executive Director, outlines in detail the purposes and functions of the Educational Council for Foreign Medical Graduates.

THE HEALING ARTS ACT OF KANSAS

The practice acts governing medicine, osteopathy, and chiropractic in the state of Kansas were repealed on July 1, 1957, and a new healing arts board, composed of members of each of these professions, replaced the three previous boards. The new act comprises 92 sections. Noteworthy are sections 9, 10, and 11, which state that licenses expire on June 30 of each year and may be renewed without examination. If renewal is not accomplished within 30 days thereafter, the license shall be suspended until an additional fee of $5 has been paid. After 90 days, a revocation order shall be issued, and reinstatement can be accomplished only upon recommendation of the board. Beginning with section 12, the act provides that the governor shall appoint a healing arts board consisting of five members who hold a degree of doctor of medicine from an accredited medical school, are residents of Kansas, and have been actively engaged in the practice of medicine and surgery in the state of Kansas under licenses issued in the state for a period of at least six consecutive years immediately preceding their appointment. Three shall be osteopathic physicians and three chiropractors.

The act provides for licensure by written examination and by endorsement of credentials. Section 36 specifies that a license may be revoked or suspended citing 11 acts or offenses, many of which are similar to the causes for withdrawal of registration in effect by the medical practice acts of other states. One unique feature is that a license may be revoked or suspended for failure to take some form of postgraduate work each year as required by the board. The act further specifies the classes or persons who are exempt from the provisions.

In addition to the Board of Healing Arts, the act provides for a Board of Basic Science Examiners, and applicants for licensure must possess a certificate of proficiency in anatomy, physiology, chemistry, bacteriology, and pathology from this board before obtaining licensure; this certificate can be obtained either by examination or endorsement.

All licenses issued prior to the taking effect of this act (July 1, 1957) continue in full force and effect but must be renewed under the provisions of the new law.

MEDICAL LICENSURE STATISTICS

The tables referring to medical licensure include figures for the number of candidates examined for medical licensure in 1957 and also for those licensed on the basis of reciprocity or endorsement of credentials. Other data are also included pertaining to the regulations for medical licensure both of physicians who secured their professional training in the United States and Canada and of physicians educated in other countries. The state boards are discussed first, followed by the basic science boards and the National Board of Medical Examiners.

STATE BOARDS OF MEDICAL EXAMINERS

Licenses Issued

During 1957 there were 15,090 licenses to practice medicine issued by 54 legally constituted medical examining boards granted authority to issue licenses to practice medicine and surgery. The number licensed by each board on the basis of written examination or by endorsement of credentials is shown in table 1. Of the 15,090 licenses issued, 7,604 were granted after written examination and 7,486 by reciprocity or endorsement of state licenses or the certificate of the National Board of Medical Examiners.

It does not follow that all physicians certified after written examination were tested in a given year. The licensing boards of 26 states, the District of Columbia, Alaska, the Canal Zone, Hawaii, and Puerto Rico require a year of internship as a prerequisite for licensure. A number of the boards permit the candidate for medical licensure to take the written examination after completion of the internship, and, if it is successful, the license is issued and dated on completion of the internship requirement. Licenses are also withheld in some states for other technicalities. As a rule, the licenses of those examined in December are dated and issued in the following year. The figures in table 1 will, therefore, not correspond with those in succeeding tables, which deal entirely with physicians examined for licensure in 1957, but they do include persons who may have been licensed in more than one state in a given year. In tables 10, 11, and 12 can be noted the number of physicians who secured their first licenses to practice medicine in 1957 and who thus represent additions to the medical profession in the United States and its territories and outlying possessions.

The greatest number of licenses issued in 1957, both by examination and by reciprocity and endorsement of credentials, was granted by California. This state issued 2,167 licenses, New York 1,375, Ohio 831, and Pennsylvania 744. More than 500 physicians were registered in Florida, Illinois, Maryland, and Texas. The fewest (15) were licensed in Nevada, while Delaware, Idaho, Montana, New Hampshire, North Dakota, South Dakota, Vermont, and Wyoming each issued less than 50 licenses. Among the territories and possessions, Puerto Rico licensed 102, Hawaii 49, Alaska 21, the Canal Zone 12, and Guam 3.

There was an increase of 547 in the total number of licenses issued in 1957 as compared with the previous year. The number of licenses issued by

examination increased 482 over the previous year, and the number issued by reciprocity and endorsement was increased by 65.

Totals of the physicians licensed in 22 previous years and for 1957, both by examination and reciprocity or endorsement of credentials, are included in table 2. The variations shown for the years from 1936 to 1941, inclusive, were due to the increase in the licensure of foreign-trained physicians. The increases in succeeding years reflect the increase in the production of physicians, the mobility of physicians, as well as the licensure of foreign-trained physicians. In 23 years, 1935-1957, the number of medical licenses issued in the United States and its territories and outlying possessions totaled 267,246, of which 142,262 were issued after written examination and 120,984 by endorsement of credentials.

TABLE 2.—*Licenses Issued, 1935-1957*

Year	Examination	Reciprocity and Endorsement	Total
1935	5,725	2,194	7,919
1936	6,276	2,773	9,049
1937	6,629	3,205	9,834
1938	6,557	2,956	9,513
1939	6,400	2,872	9,272
1940	6,289	2,866	9,155
1941	6,057	2,762	8,819
1942	6,152	2,469	8,621
1943	6,062	2,340	8,402
1944	7,080	2,596	9,676
1945	5,580	3,622	9,202
1946	6,567	9,669	16,236
1947	6,763	7,701	14,464
1948	5,997	7,596	13,592
1949	5,252	6,929	12,181
1950	5,454	6,755	12,209
1951	5,713	6,225	11,938
1952	6,212	7,016	13,228
1953	6,565	7,869	14,434
1954	6,827	8,202	15,029
1955	7,379	7,461	14,840
1956	7,122	7,421	14,543
1957	7,604	7,486	15,090
Totals	146,262	120,984	267,246

Candidates Examined by Medical Examining Boards

Compilations referring to those examined for medical licensure in 1957 by 54 licensing [2] boards are given in table 3. For each board is recorded the number who passed and failed, the medical school of graduation, the percentage of failures for each school and for each licensing board, the number of states in which graduates of a given school were examined, and the percentage of failures for each school and each state. Medical schools that are no longer in operation in the United States, unapproved medical schools in the United States, foreign faculties of medicine, and schools of osteopathy are not listed by name, but the numbers examined in each state in these four categories are included after those for existing medical schools in the United States and Canada.

During 1957 there were 9,116 applicants for licensure by written examination, of whom 7,769 passed and 1,347, or 14.8%, failed. The candidates examined represented 78 medical schools in the United States including Puerto Rico, 11 approved medical schools of Canada, 1 approved medical school in the United States no longer operating, 227 faculties of medicine of foreign countries, 5 unapproved medical schools in the United States that are no longer in existence, and 8 schools of osteopathy. Three schools had graduates for the first time in 1957—the University of Mississippi, the University of Missouri, and the University of Saskatchewan. No graduates of the latter school were examined for medical licensure in the United States in 1957. Osteopaths who were granted the privilege to practice medicine, surgery, or both by medical examining boards are included in these statistics. Osteopaths who obtain the legal right to special practice by other than medical examining boards are not included in these compilations.

Examination and reciprocity meetings are scheduled at frequent intervals by licensing boards in most of the states to facilitate licensure and enable physicians to commence the practice of medicine without undue delay. Later in this study there is included a tabulation giving the schedules for all states. The publication of the dates of examination and reciprocity or endorsement meetings is a regular biweekly feature of THE JOURNAL.

The 9,116 examinees included 6,244 graduates of approved medical schools in the United States, 185 graduates of approved medical schools in Canada, 4 graduates of an approved medical school in the United States that is now extinct; and 2,299 graduates of 227 faculties of medicine located in countries other than the United States and Canada; 42 graduates of unapproved medical schools in the United States no longer in existence, and 342 graduates of schools of osteopathy.

As in table 1, the 9,116 physicians and others examined do not represent an equal number of persons, since a candidate tested in more than one state in a calendar year is counted in each state; however, if a candidate failed more than once in a given state within the year, he is counted in that state as a single failure. Figures that show the number of individual licentiates added to the medical profession in 1957 are given in tables 10, 11, and 12.

The greatest number of graduates of any one school examined was 229, representing a public university, the University of Tennessee College of Medicine. Of the graduates of this school, 126 were tested in Tennessee and 103 in 13 other states. The greatest number examined from a private school was 194, representing Jefferson Medical College; they were tested in 20 states, including 112 who were examined in Pennsylvania, where the school is located. Twenty-two schools, including those named, had more than 100 of their graduates examined for medical licensure in 1957 as follows:

	No. of Examinees	No. of States in Which Examinations Were Taken
Public Medical Schools		
University of Illinois	179	19
Indiana University	156	6
State University of Iowa	110	8
University of Kansas	113	6
Louisiana State University	103	6
University of Michigan	206	10
University of Minnesota	124	6
Ohio State University	148	7
University of Tennessee	229	14
University of Texas	135	3
Medical College of Virginia	111	8
Private Medical Schools		
University of Miami	110	16
Emory University	117	5
Northwestern University	138	27
University of Louisville	121	10
Tulane University	170	9
St. Louis University	124	5
Washington University	113	9
Duke University	125	13
Jefferson Medical College	194	20
Temple University	130	14
University of Pennsylvania	112	17

Albany with 4 examinees, Boston University with 11, and Yale and Syracuse with 13 examinees had the fewest number of applicants for medical licensure by written examination before state boards. The majority of the graduates of these schools are licensed by endorsement of the certificate of the National Board of Medical Examiners. This is also true of other schools with small numbers of examinees.

Two schools in the United States had graduates for the first time in 1956-1957, the University of Mississippi and the University of Missouri. Twenty-five graduates of the University of Mississippi were examined in two states, and all passed. Graduates of the University of Missouri were also examined in two states; 31 were examined, and 5 (16.1%) failed. The University of Saskatchewan graduated its first class of students in 1957, but none appeared for licensure in the United States in 1957.

There were 185 graduates of 11 approved medical schools in Canada tested for medical licensure in 1957 by 34 boards. The figures are given for each licensing board by school in table 3 and the number examined by each board in table 4. Of the 185 candidates, 164 passed, and 21, or 11.3%, failed.

Graduates of foreign faculties of medicine were examined by 40 boards. There were 2,299 examined, of whom 1,345 passed, and 954, or 41.5% failed. Graduates of five unapproved medical schools were examined by five states. There were 42 examined, of whom 9 passed, and 33, or 78.6%, failed. Graduates of schools of osteopathy were tested in 12 states. Represented were 342 examinees, of whom 284 passed, and 58, or 16.9%, failed. Four graduates of an approved medical school no longer in operation were examined in one state, one of whom failed. Elsewhere (tables 10, 11, and 12) are given figures referring to actual licentiates and additions to the medical profession.

Failures in Medical Licensure Examinations

During 1957, as recorded in table 3, 1,347 of the 9,116 examinees for medical licensure failed. In table 6 are recapitulated the numbers examined in each state, the number who failed the examination, and the percentage of failures. Seventeen states had no failures among their examinees, 15 states failed less than 5%, 4 boards failed between 5 and 10%, while the percentage of failures in 14 states was more than 10%. It can be noted in referring to table 3 that those states with high percentages of failures examine a considerable number of foreign trained physicians and graduates of unapproved medical schools. The one exception is Florida. This state has no reciprocal provisions for medical licensure, and physicians planning semiretirement or full retirement in a more ideal climate seek licensure in these states. Many of these physicians have graduated from medical schools in the early years of the century and experience difficulty in writing examinations. Florida likewise examines graduates of unapproved medical schools.

In general, state licensing boards require the applicant to receive an over-all average of 75% and at least 60% in any one subject. In case of failure in not more than two subjects, the applicant is permitted a second examination in those subjects within 12 months. A few states consider such persons as conditioned in the subjects in which they fail. Conditioned candidates are not counted as failures in these statistics. When their grades are raised after a successful examination, they are recorded among those who passed.

Of the 15,090 persons obtaining licenses in 1957, 374 failed state board tests before obtaining a license. Of these, 196 had one previous failure, 65 had two failures, 44 had three failures, and 26 had four or more failures. Forty-two physicians had failures ranging from 1 to 15, while one physician had 34 failures before securing licensure. Of the 374 licentiates with previous failures, 351 were graduates of foreign medical faculties. A few of the state boards have no restrictions on the number of examinations that may be taken prior to licensure, but most states have a set limit of three examinations.

The following seven approved schools in the United States had no failures among their graduates in medical licensing examinations last year:

	No. of Graduates Examined	No. of States in Which Examinations Were Taken
Stanford University	43	5
University of California, Los Angeles	29	1
University of California, San Francisco	77	6
Yale University	13	5
University of Mississippi	25	2
Albany Medical College	4	3
University of Utah	44	14

Marginal Number	SCHOOL	Alabama P	Alabama F	Arizona P	Arizona F	Arkansas P	Arkansas F	California P	California F	Colorado P	Colorado F	Connecticut P	Connecticut F	Delaware P	Delaware F	Dist. of Columbia P	Dist. of Columbia F	Florida P	Florida F	Georgia P	Georgia F	Idaho P	Idaho F	Illinois P	Illinois F	Indiana P	Indiana F	Iowa P	Iowa F	Kansas P	Kansas F	Kentucky P	Kentucky F	Louisiana P	Louisiana F	Maine P	Maine F	Maryland P	Maryland F	Massachusetts P	Massachusetts F	Michigan P	Michigan F	Minnesota P	Minnesota F
	ALABAMA																																												
1	Medical College of Alabama, Birmingham	67	0															10	2	1	0																										
	ARKANSAS																																													
2	University of Arkansas School of Med., Little Rock					77	3											3	0	1	0													1	0										
	CALIFORNIA																																												
3	Coll. of Med. Evangelists, Loma Linda-Los Angeles							74	1	1	0							2	1			1	0													1	0	0	1			9	0		
4	Univ. of So. California School of Med., Los Angeles							67	0									0	1																										
5	Stanford University School of Med.; San Francisco							39	0															1	0	1	0											1	0						
6	Univ. of California School of Med., Los Angeles							29	0																																				
7	Univ. of California School of Med., San Francisco							71	0									1	0															1	0									2	0
	COLORADO																																												
8	University of Colorado School of Medicine, Denver									60	0							3	0																					0	2				
	CONNECTICUT																																												
9	Yale University School of Medicine, New Haven																	8	0																									1	0	1	0
	DISTRICT OF COLUMBIA																																												
10	Georgetown University School of Medicine															3	0	8	6	1	0								1	0				1	0			4	0						
11	George Washington University School of Medicine							1	0	1	0							6	2	2	0					2	0							1	0							2	0		
12	Howard University College of Medicine	4	0					5	1			3	1			3	1	1	0					1	3											1	0	47	4	0	2	1	0		
	FLORIDA																																												
13	University of Miami School of Med., Coral Gables																	33	1	25	0													2	0										
	GEORGIA																																												
14	Emory University School of Med., Emory Univ.																	30	11	71	0																								
15	Medical College of Georgia, Augusta																	13	2	78	0																								
	ILLINOIS																																												
16	Chicago Medical School																	10	2					2	0									2	0										
17	Northwestern University Medical School, Chicago	1	0					7	0	2	0	1	0					11	3	1	0			43	7	4	0			1	0			9	0							1	0	4	0
18	Stritch School of Med. of Loyola Univ., Chicago							6	1	2	0							5	0					36	3	2	0															10	0	2	0
19	University of Chicago, The School of Medicine							4	0									5	0					5	1	3	0							1	0			1	0			2	0	2	0
20	University of Illinois College of Medicine, Chicago							17	0	1	0							12	1	1	0			113	7	2	0							1	0					1	0	3	0	5	0
	INDIANA																																												
21	Indiana Univ. School of Medicine, Bloomington-Indianapolis																	10	1					3	0	139	0					1	0	1	0										
	IOWA																																												
22	State Univ. of Iowa College of Medicine, Iowa City			1	0													5	2					1	0			97	0					1	0									1	0
	KANSAS																																												
23	University of Kansas School of Medicine, Lawrence-Kansas City			1	0													4	1											99	0														
	KENTUCKY																																												
24	University of Louisville School of Med., Louisville			1	0													13	4	1	0			2	1	2	0					93	0									1	0		
	LOUISIANA																																												
25	Louisiana State Univ. School of Med., New Orleans																	2	0																	94	0								
26	Tulane University of Louisiana School of Medicine, New Orleans																	30	9					1	0											107	2								
	MARYLAND																																												
27	Johns Hopkins Univ. School of Med., Baltimore																	5	0	1	0			1	0					1	0							55	0			2	0	1	0
28	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore													1	0			7	3																			83	2						
	MASSACHUSETTS																																												
29	Boston University School of Medicine																	4	3															1	0										
30	Harvard Medical School, Boston							7	0							1	0	12	1	1	0					1	0			1	0			3	0					2	0			2	0
31	Tufts University School of Medicine, Boston																	5	2							3	C							2	0							1	0		
	MICHIGAN																																												
32	University of Michigan Medical School, Ann Arbor																	6	2					2	0									1	0					0	1	185	0	1	0
33	Wayne State University College of Med., Detroit																	1	2					1	0															0	1	60	0		
	MINNESOTA																																												
34	University of Minnesota Med. School, Minneapolis																	3	1					3	0															1	0			112	0
	MISSISSIPPI																																												
35	University of Mississippi School of Med., Jackson																	1	0																										
	MISSOURI																																												
36	University of Missouri School of Med., Columbia																	7	4																										
37	St. Louis University School of Medicine																							2	0																			3	0
38	Washington University School of Med., St. Louis																	8	2					5	0					2	0			1	0									3	0
	NEBRASKA																																												
39	Creighton University School of Medicine, Omaha							9	0	3	0	1	0					1	2					1	0			3	0															4	0
40	University of Nebraska College of Medicine, Omaha			1	0													2	1					1	0			1	0													1	0	2	0
	NEW YORK																																												
41	Albany Medical College																	2	0															1	0										
42	University of Buffalo School of Medicine													1	0			8	4							2	0																		
43	Columbia University College of Physicians and Surgeons, New York							1	0							1	0	10	1							1	0													1	0	1	0	1	0
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

P—Passed; F—Failed

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Hawaii and Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	No. of Boards Examined by	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
23									1 0																				81	79	2	2.5	4	1
24									2 1																1 0				89	85	4	2.5	6	2
25																				1 0						1 0			97	93	4	4.1	13	3
26	1 0	1 0		1 0					0 1																			1 0	69	68	1	1.4	3	4
27																								1 0					43	43	0	0.0	5	5
28																												1 0	29	29	0	0.0	1	6
29												1 0																	77	77	0	0.0	6	7
30																												1 0	69	67	2	2.9	7	8
31		1 0										1 0									1 0							1 0	13	13	0	0.0	5	9
32										2 0									1 0										31	25	6	19.4	8	10
33												2 0			5 0								1 0						21	19	2	9.5	11	11
34										1 0					1 0														110	89	21	19.1	16	12
35	1 0														7 0																			
36		1 0					2 0		11 9	1 0		1 0																	61	60	1	1.6	3	13
37																													117	105	12	10.3	5	14
38	2 0								1 1	1 0																			93	91	2	2.1	2	15
39																	1 0												18	16	2	11.1	5	16
40	1 0		2 0	1 0					2 1	2 0	9 0				6 0					5 1	1 0	1 0	1 0	3 0		5 0	1 0	1 0	138	126	12	8.7	27	17
41							1 0		1 0	0 1	3 0	2 0								1 0				1 0		1 0			80	74	6	7.5	15	18
42									1 0		2 0							1 0						1 0		1 0			32	31	1	3.2	14	19
43		3 0							2 0	1 0	2 0	1 0	2 0	1 0	1 0					1 0				3 0				0 1	179	170	9	5.0	19	20
44																												1 0	156	155	1	0.6	6	21
45															1 0					1 0									110	108	2	1.8	8	22
46		2 0							4 1					1 0															113	111	2	1.8	6	23
47	1 0	1 0																1 0											121	116	5	4.1	10	24
48	2 0								0 1		1 0	1 0																	101	100	1	1.0	6	25
49	15 0						1 0				1 0			1 0						2 0								1 0	170	159	11	6.5	9	26
50		1 0					1 0		3 1														2 0						74	73	1	1.4	11	27
1									2 0	1 0																			99	94	5	5.1	5	28
2							1 0										1 0			0 1									11	7	4	36.3	5	29
3	6 1	0							2 0	4 0	1 0	1 0			1 0					3 0	1 0		1 1		3 0			1 0	53	51	2	3.8	21	30
4										1 0					1 0					1 0									16	14	2	12.5	7	31
5									1 0			2 0			3 0													1 1	206	202	4	1.9	10	32
6									4 0																			3 0	68	65	3	4.4	5	33
7											1 0				1 0														124	123	1	0.8	6	34
8	24 0																												25	25	0	0.0	2	35
9		19 1																											31	26	5	16.1	2	36
10		108 3							6 1																			1 0	124	120	4	3.2	5	37
11		86 0							4 0																			1 0	113	111	2	1.8	9	38
12			2 0	4 0	0		1 0								1 0						1 0							1 0	70	68	2	2.9	13	39
13			77 1					1 0	0 1		1 0			0 1	1 0											2 0			94	90	4	4.3	13	40
14															1 0														4	4	0	0.0	3	41
15								1 0	0 2	0 2	0				1 0					2 0						1 0			24	20	4	16.7	9	42
16						1 0			0 1			1 0			1 0					6 0									27	25	2	7.5	12	43
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Marginal Number	SCHOOL	Alabama P	Alabama F	Arizona P	Arizona F	Arkansas P	Arkansas F	California P	California F	Colorado P	Colorado F	Connecticut P	Connecticut F	Delaware P	Delaware F	Dist. of Columbia P	Dist. of Columbia F	Florida P	Florida F	Georgia P	Georgia F	Idaho P	Idaho F	Illinois P	Illinois F	Indiana P	Indiana F	Iowa P	Iowa F	Kansas P	Kansas F	Kentucky P	Kentucky F	Louisiana P	Louisiana F	Maine P	Maine F	Maryland P	Maryland F	Massachusetts P	Massachusetts F	Michigan P	Michigan F	Minnesota P	Minnesota F
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	
	NEW YORK—continued																																												
44	Cornell University Medical College, New York			1	0			2	0	1	0			1	0			5	1					1	0									1	0	2	0	1	0						
45	New York Medical College, Flower and Fifth Avenue Hospitals					1	0	0	1			2	0					12	6							1	0							1	0					1	0	1	0		
46	New York University College of Medicine																	9	2					1	0						1	0	1	0							1	0		
47	State University of New York College of Medicine, New York City	1	0															7	2							1	0					2	0										
48	Univ. of Rochester School of Med. and Dentistry									1	0							1	2													1	0			1	0	1	0				
49	State Univ. of New York College of Med., Syracuse																	7	3																1	0		1	0				
	NORTH CAROLINA																																										
50	University of North Carolina School of Medicine, Chapel Hill																	1	0													1	0										
51	Duke University School of Medicine, Durham	1	0			2	0											32	7	1	0					1	0													1	0	2	0
52	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem																	10	2					1	0																		
	OHIO																																										
53	University of Cincinnati College of Medicine																	8	2																								
54	Western Reserve Univ. School of Med., Cleveland																	8	1					1	0															1	0		
55	Ohio State University College of Med., Columbus			1	0													4	1					1	1																		
	OKLAHOMA																																										
56	Univ. of Oklahoma School of Med., Oklahoma City	1	0															2	0					1	1					1	0											1	0
	OREGON																																										
57	University of Oregon Medical School, Portland							9	0	1	0							1	0	1	0															1	0	1	0	8	0		
	PENNSYLVANIA																																										
58	Hahnemann Med. Coll. and Hosp. of Philadelphia			1	0			1	0	1	0			1	0			7	3																								
59	Jefferson Medical College of Philadelphia							2	0					1	0	1	0	18	5	1	0	1	0	2	1	1	0							1	0					1	0	2	0
60	Temple University School of Medicine, Philadelphia							2	0			1	0	1	0			13	2	2	0			1	0	1	0								1	0					2	0		
61	Univ. of Pennsylvania School of Med., Philadelphia							4	0	1	0					1	0	11	1															1	0		2	0	1	0		1	0
62	Woman's Med. Coll. of Pennsylvania, Philadelphia							3	0									2	1					1	0									1	0	1	0						
63	University of Pittsburgh School of Medicine							1	0					1	0			5	2					1	0									1	0					1	0	2	0	1	0
	SOUTH CAROLINA																																										
64	Medical College of South Carolina, Charleston																	8	0																							3	0		
	TENNESSEE																																										
65	University of Tennessee College of Med., Memphis	2	0	1	0	1	0											27	12	3	0			2	1					1	0												
66	Meharry Medical College, Nashville							1	0									2	1	35	0			2	1	1	0					1	0	1	0			1	1			1	0		
67	Vanderbilt University School of Medicine, Nashville											1	0					5	2																							1	0
	TEXAS																																										
68	Univ. of Texas Southwestern Med. School, Dallas													1	0			1	0																								
69	University of Texas Medical Branch, Galveston																	1	1															1	0								
70	Baylor University College of Medicine, Houston																	1	1					3	1																	1	0
	UTAH																																										
71	University of Utah School of Med., Salt Lake City			1	0			11	0									1	0			1	0	1	0			1	0					1	0					2	0	4	0
	VERMONT																																										
72	University of Vermont College of Med., Burlington											1	0					1	0															1	0	1	0	1	0				
	VIRGINIA																																										
73	Univ. of Virginia School of Med., Charlottesville																	11	0					1	0									1	0								
74	Medical College of Virginia, Richmond			1	0													12	4	1	0																						
	WASHINGTON																																										
75	University of Washington School of Med., Seattle							6	0	2	0													1	0																	1	0	5	0
	WISCONSIN																																										
76	University of Wisconsin Medical School, Madison			1	0			3	1			1	0			1	0	2	2					1	0	2	0							1	0			1	0	1	1	1	0	1	0
77	Marquette University School of Med., Milwaukee							7	0	2	0							4	2					3	1									1	0			1	0			2	0	4	0
	PUERTO RICO																																										
78	Univ. of Puerto Rico School of Med., San Juan																																										
	CANADA																																										
79	Univ. of Alberta Faculty of Medicine, Edmonton							8	1			1	1																													1	0	1	0
80	Univ. of British Columbia Sch. of Med., Vancouver							5	0																																			
81	Univ. of Manitoba Faculty of Medicine, Winnipeg			1	0			6	1															1	0							1	0							2	0	6	0
82	Dalhousie University Faculty of Medicine, Halifax			1	0							0	1																					2	0								
83	Queen's University Faculty of Medicine, Kingston							1	0									0	2					1	0													2	0			1	0		
84	Univ. of Western Ontario Fac. of Med., London															1	0	0	2																							2	0		
85	University of Ottawa Faculty of Medicine							1	0									1	0					1	0			1	0							1	0					3	0		
86	University of Toronto Faculty of Medicine			1	0			9	0									0	1					1	0			1	0							1	0	2	0			5	0	1	0
87	McGill University Faculty of Medicine, Montreal							7	0	1	0	2	0			2	0	1	1			1	0			1	0					1	0							7	0	1	0
88	University of Montreal Faculty of Medicine																																			1	0			1	0			2	0
89	Laval University Faculty of Medicine, Quebec							1	3									1	0																	2	1								
90	Univ. of Saskatchewan College of Med., Saskatoon																																											
	OTHERS																																										
91	Foreign medical faculties	1	0	6	1			90	50	4	0	87	42	4	1	8	0	28	15	5	0	1	0	128	251	6	0	7	0	2	1					24	11	126	74	24	29	30	0	17	0
92	Extinct medical schools																	3	1																										
93	Unapproved medical schools																	5	3					0	1															0	23				
94	Schools of osteopathy									5	0			1	0									2	9	5	0			144	16									0	1				
95	Totals	78		21		84		577		89		146		14		23		745		233		5		673		182		112		268		98		252		52		411		97		348		208	
96	Totals Examined Passed	78		20		81		517		89		101		13		22		575		233		5		383		182		112		251		98		250		40		329		37		348		208	
97	Totals Examined Failed	0		1		3		60		0		45		1		1		170		0		0		290		0		0		17		0		2		12		82		60		0		0	
98	Percentage failed	0.0		4.8		3.6		10.4		0.0		30.8		7.2		4.4		22.8		0.0		0.0		43.1		0.0		0.0		6.3		0.0		0.8		23.0		19.9		61.9		0.0		0.0	
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

P—Passed; F—Failed

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Hawaii and Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	No. of Boards Examined by	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
1 0					1 0	2 0		6 1			1 0			2 0					2 0						1 0		33	31	2	6.1	17	44
1 0						3 0		8 2	1 0		2 0			3 0	3 0				4 1							1 0	55	45	10	18.2	17	45
								6 1											1 0								24	21	3	12.5	8	46
								3 1											1 0							2 0	20	17	3	15.0	7	47
1 0	1 0							3 2	2 0				1 0	3 0											1 0	2 0	23	19	4	17.4	13	48
								1 0																			13	10	3	23.1	4	49
									58 1																		61	60	1	1.6	3	50
2 0									80 0					2 0		1 0			2 0			1 0					125	118	7	5.6	13	51
									33 1																		67	64	3	4.5	3	52
								4 1		1 0	79 9															2 0	97	94	3	3.1	5	53
								8 2			68 0			1 0												0 1	91	87	4	4.4	7	54
								3 1			34 0			1 0											1 0		148	145	3	2.0	7	55
												86 0													1 0		94	93	1	1.1	7	56
													32 0	2 0					1 0				3 0		1 0	1 1	63	62	1	1.6	13	57
						10 0		0 2			4 0			65 0													95	90	5	5.3	9	58
1 0						30 0		2 1			3 0			112 0	2 0				1 0					3 0		2 0	194	187	7	3.6	20	59
						3 0		2 1						95 0					1 0		2 0						130	127	3	20.8	14	60
3 0	2 0					4 0		3 1	4 0					68 0					1 0		1 0		2 0				112	110	2	1.8	17	61
									1 0		1 0			17 0										1 0			30	29	1	3.3	10	62
	2 0							1 0			3 0			76 0					1 0								98	96	2	2.0	13	63
																76 3											90	87	3	3.3	3	64
16 0	2 0													1 0				126 0	2 0			1 0 1 0					229	216	13	5.7	14	65
10 0	4 1							5 5			2 0			2 1				1 0						1 0 1 0			81	71	10	12.5	17	66
1 0											1 0							45 0									56	54	2	3.6	6	67
1 0								2 0									1 0		89 3							1 0	99	96	3	3.0	7	68
																			130 2								135	132	3	2.2	3	69
2 0								1 0											79 2								91	87	4	4.4	6	70
								2 0			1 0								1 0	15 0			2 0				44	44	0	0.0	14	71
								0 1						1 0							6 0	1 0			1 0			15	14	1	6.7	10	72
								0 2						1 0								76 1						93	90	3	3.2	6	73
									1 0											1 0		78 0		12 0			1 0	111	107	4	3.6	8	74
	2 0					1 0		1 0			2 0			1 0					1 0				37 1				61	60	1	1.6	..	75
													2 0	1 0					1 0		0 1				52 0	1 0	78	73	5	6.4	..	76
						2 0		1 0										1 0	2 0				4 0		56 1		94	90	4	4.3	..	77
								5 2			1 0			1 0												4 0	13	11	2	15.4	..	78
								1 0						2 0											1 0	1 0	18	16	2	11.1	..	79
																											5	5	0	0.0	..	80
								2 1			1 0			1 0													23	21	2	8.7	..	81
								2 0			1 0			1 0 1 0													9	8	1	11.1	..	82
		1 0												1 0													9	7	2	22.2	..	83
2 0											1 0								1 0						1 0		10	8	2	20.0	..	84
											1 0																9	9	0	0.0	..	85
	1 0							1 0			3 1			3 0												1 1	33	30	3	9.1	..	86
	1 0							3 0	1 0		3 0			3 0					1 0 1 0			1 0 1 0			1 0		43	42	1	2.3	..	87
					1 0			1 3			1 0										1 0						11	8	3	27.3	..	88
					1 0			2 1			1 0			1 0 1 0													15	10	5	33.3	..	89
																											0	0	0	0.0	..	90
2 0	9 3		1 0		5 3	86 7	3 2	268 323	1 2	2 1	86 73			15 0	36 1		13 0		34 9			91	46 9	0 7	1 7	0	72 8	2,299	1,345	954	41.5	..	91
																											4	3	1	25.0	..	92
								2 4								2 2											42	9	33	78.6	..	93
					1 0	9 0		44 28			66 4								3 0						4 0		342	284	58	16.9	..	94
122	250	5	121	0	13	164	7	847	218	17	569	86	41	515	45	86	16	174	402	20	12	302	71	25	147	1	118	9,116					95
122	248	5	120	0	10	157	5	442	214	15	491	86	40	514	44	81	16	174	383	20	11	254	70	24	145	1	105		7,709				96
0	8	0	1	0	3	7	2	405	4	2	78	0	1	1	1	5	0	0	19	0	1	48	1	1	2	0	13			1,347	14.8		97
0.0	3.1	0.0	0.8	0.0	23.1	4.3	28.6	47.8	1.8	11.8	13.7	0.0	2.4	0.2	2.2	5.8	0.0	0.0	4.7	0.0	8.3	15.9	1.4	4.0	1.4	0.0	11.0						98
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Forty-two schools had less than 5% and 13 had between 5 and 10% failures among their graduates. There were 16 schools with 10% or more failures in state examinations. The over-all figures and percentages for failures, if compared with the results of the National Board of Medical Examiners (appearing elsewhere in this study), show a very low percentage of failures (only 12 for all of part III) among graduates of medical schools in the United States.

TABLE 4.—*Graduates of Medical Schools in Canada Examined for Licensure in the United States, 1957*

	Examined	Passed	Failed
Arizona	3	3	0
California	43	38	5
Colorado	1	1	0
Connecticut	5	3	2
District of Columbia	3	3	0
Florida	9	3	6
Idaho	1	1	0
Illinois	4	4	0
Indiana	1	1	0
Iowa	2	2	0
Kentucky	1	1	0
Louisiana	1	1	0
Maine	8	7	1
Maryland	4	4	0
Massachusetts	1	1	0
Michigan	21	21	0
Minnesota	11	11	0
Mississippi	2	2	0
Missouri	2	2	0
Montana	1	1	0
New Hampshire	2	2	0
New York	19	14	5
North Carolina	1	1	0
Ohio	13	12	1
Pennsylvania	12	12	0
Rhode Island	2	2	0
Texas	2	2	0
Utah	1	1	0
Vermont	1	1	0
Virginia	1	1	0
Washington	1	1	0
Wisconsin	3	3	0
Hawaii and Puerto Rico	3	2	1
Totals	185	164	21

Registration by Reciprocity and Endorsement

The reciprocity and endorsement policies in medical licensure in the United States, Alaska, the Canal Zone, Guam, Hawaii, Puerto Rico, and the Virgin Islands are summarized in table 7. Florida is the only state that requires all applicants for licensure to pass a written examination. Hawaii and the Virgin Islands do not have reciprocal relations with any state, but Hawaii will endorse physicians certified by the National Board of Medical Examiners. Twenty-one boards require applicants for licensure to obtain a certificate from the board of examiners in the basic sciences of the state. In the section of this report pertaining to basic science boards is included a table outlining the reciprocity, endorsement, exemption, or waiver policies of these boards.

Twenty-nine states, Alaska, and Puerto Rico have reciprocal agreements with specific states. In 19 states, Canal Zone, and Guam, reciprocity is extended at the discretion of the licensing board. Twenty states, which have reciprocal agreements, also have similar discretionary powers to endorse applicants from nonreciprocating states who present credentials that correspond with those required by their respective states in the year issued. Also in this table is a column indicating the recognition accorded the certificate of the National Board of Medical Examiners.

Additional requirements, including professional practice, citizenship, oral examination and internship, and the fee for a license by reciprocity or endorsement, are also recorded. In some states, physicians of Canadian birth are exempt from the citizenship requirement. This is indicated by footnote. Few states will accept graduates of foreign faculties of medicine on a reciprocal basis. Other requirements or exemptions are indicated by footnote; footnote numbers are referred to in the miscellaneous column in the table.

This chart will be found helpful to physicians who are considering a change in location. The facts recorded in this table are intended to present merely statements of licensure policies. The information here given should be supplemented by direct communication with the licensing board. A list of the executive officers in charge of medical licensure appears elsewhere in this study.

The procedure in issuing licenses by reciprocity or endorsement varies. Some states entertain applications for licensure at any time, while others hold monthly, quarterly, or semiannual meetings. The policy in effect in each state is contained in table 23. In addition, THE JOURNAL publishes biweekly the exact dates when reciprocity or endorsement applications are considered.

The credentials presented by physicians granted licenses to practice medicine without written examination are given in table 8. There were 7,486 so registered on the basis of licenses from other states, the District of Columbia, the territories or outlying possessions of the United States, Canada and foreign countries, the certificate of the National Board of Medical Examiners, and by acceptance of service with an agency of the government of the United States. California issued the greatest number of licenses by this method. In this state 1,613 were

TABLE 5.—*Source of Candidates Examined for Licensure in the United States, 1957*

Medical Schools	No. of Schools	No. Examined	No. Passed	No. Failed	% Failed
Approved schools in United States	78	6,244	5,964	280	4.3
Approved in Canada	11	185	164	21	11.3
Extinct	1	4	3	1	25.0
Foreign	230	2,299	1,345	954	41.5
Unapproved schools	5	42	9	33	78.6
Schools of osteopathy	8	342	284	58	16.9
Totals		9,116	7,769	1,347	14.8

registered. New York licensed 1,097 by this method. Figures for other states were fewer than 400. Nine states licensed more than 200.

The largest number of candidates who presented the same type of credentials were the 3,027 diplomates certified by the National Board of Medical Examiners; 921 were licensed in New York, 585 in California, and 249 in Massachusetts. Other states registered fewer than 200. None were licensed on this basis in Arkansas, Florida, Indiana, Louisiana, South Dakota, and Texas.

There were 341 licenses issued in Illinois, 288 in Missouri, and 286 in Ohio presented to other states for reciprocal registration. More than 200 licenses from Maryland, Pennsylvania, and Tennessee were endorsed for reciprocal licensure. Licenses from every state with the exception of Nevada and Wyoming were used as the basis for registration by this method, ranging from 2 from New Mexico to 341 from Illinois.

Seven states registered 49 physicians by endorsement of credentials from one of the government services. Thirty-eight physicians were licensed by 12 boards on the basis of a license issued in Alaska, the Canal Zone, Hawaii, and Puerto Rico; twenty-one physicians were licensed by six boards on the basis of Canadian or foreign credentials.

Table 9 records the number of individual schools represented by the 7,486 reciprocity licentiates. With the exception of the University of Missouri, every approved medical school in the United States and 10 of the 12 approved medical schools of Canada had graduates licensed without written examination in 1957. The 7,486 physicians registered without written examination in the United States in 1957 included 7,164 graduates of approved medical schools in the United States. There were 240 graduates of New York University, 236 each from Columbia University and the State University of New York at New York City, 220 from Harvard, and 205 from Northwestern University licensed by reciprocity. In addition, 100 or more graduates of 24 other schools secured such licenses. Table 9 reflects the movement of graduates to states other than the ones in which they obtained their professional training or in which they first established their practice.

One hundred seventy-nine foreign-trained physicians obtained licenses by reciprocity or endorsement in 23 states, and 35 graduates of approved medical schools no longer in operation were registered by 21 states. Twenty-six graduates of unapproved medical schools secured licenses in 10 states, and 82 graduates of schools of osteopathy were registered to practice medicine, surgery, or both in 10 states. There were 322 represented in these four groups. There were 140 graduates of Canadian medical schools registered by 30 boards.

Licentiates Representing Additions to the Medical Profession

Figures for the number of physicians who secured their first license to practice medicine and surgery in 1957 and who therefore represent additions to the medical profession in the United States and its territories and outlying possessions are presented in tables 10 and 11. Included in these compilations are figures pertaining to candidates examined and licensed in 1957; candidates who were examined in previous years but to whom licenses were not issued until 1957 pending completion of a required internship, citizenship, or other technicalities; and physicians not previously licensed in any state but who were certified during the year on the basis of the certificate of the National Board of Medical Examiners. The figures also include phy-

TABLE 6.—*Failures in Medical Licensure Examinations, 1957*

State in Which Examined	No. Examined	No. Passed	No. Failed	% Failures
Alabama	78	78	0	0.0
Arizona	21	20	1	4.8
Arkansas	84	81	3	3.6
California	577	517	60	10.4
Colorado	89	89	0	0.0
Connecticut	146	101	45	30.8
Delaware	14	13	1	7.2
District of Columbia	23	22	1	4.4
Florida	745	575	170	22.8
Georgia	233	233	0	0.0
Idaho	5	5	0	0.0
Illinois	673	383	290	43.1
Indiana	182	182	0	0.0
Iowa	112	112	0	0.0
Kansas	268	251	17	6.3
Kentucky	98	98	0	0.0
Louisiana	252	250	2	0.8
Maine	52	40	12	23.0
Maryland	411	329	82	19.9
Massachusetts	97	37	60	61.9
Michigan	348	348	0	0.0
Minnesota	208	208	0	0.0
Mississippi	122	122	0	0.0
Missouri	256	248	8	3.1
Montana	5	5	0	0.0
Nebraska	121	120	1	0.8
Nevada	0	0	0	0.0
New Hampshire	13	10	3	23.1
New Jersey	164	157	7	4.3
New Mexico	7	5	2	28.6
New York	847	442	405	47.8
North Carolina	218	214	4	1.8
North Dakota	17	15	2	11.8
Ohio	569	491	78	13.7
Oklahoma	86	86	0	0.0
Oregon	41	40	1	2.4
Pennsylvania	515	514	1	0.2
Rhode Island	45	44	1	2.2
South Carolina	86	81	5	5.8
South Dakota	16	16	0	0.0
Tennessee	174	174	0	0.0
Texas	402	383	19	4.7
Utah	20	20	0	0.0
Vermont	12	11	1	8.3
Virginia	302	254	48	15.9
Washington	71	70	1	1.4
West Virginia	25	24	1	4.0
Wisconsin	147	145	2	1.4
Wyoming	1	1	0	0.0
Canal Zone	118	105	13	11.0
Totals	9,116	7,769	1,347	14.8

Reciprocates with, or Endorses Certificates Granted by

Marginal Number	The Examining Board of	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	Arizona	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas	+	+	..	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	3
4	California	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut	..	..	..	..	..	..	..	+	..	..	+	+	+	..	+	..	+	+	+	+	+	..	..	..	..	..	..	+	..	..	6
7	Delaware	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
8	District of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida	No reciprocity or endorsement policies																													9
10	Georgia	+	..	+	+	+	..	..	+	..	..	..	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	10
11	Idaho	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois	+	..	+	+	+	+	..	..	+	..	..	+	+	+	+	+	+	..	+	..	+	+	+	+	..	+	+	..	+	+	..	12
13	Indiana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
14	Iowa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
15	Kansas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
16	Kentucky	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
17	Louisiana	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	17
18	Maine	..	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	18
19	Maryland	+	..	+	+	..	+	+	+	..	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	19
20	Massachusetts	+	..	..	+	..	+	+	+	..	+	+	..	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	20
21	Michigan	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	21
22	Minnesota	+	[41]	+	+	+	[41]	[41]	+	+	+	+	[41]	+	[41]	+	[41]	[41]	+	+	+	+	..	+	+	+	+	+	+	[41]	+	+	22
23	Mississippi	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	23
24	Missouri	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	24
25	Montana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
26	Nebraska	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	26
27	Nevada	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	..	27
28	New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
29	New Jersey	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	29
30	New Mexico	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	30
31	New York	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
32	North Carolina	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	32
33	North Dakota	+	+	+	+	+	..	..	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	34
35	Oklahoma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon	+	+	+	+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	36
37	Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	38
39	South Carolina	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	39
40	South Dakota	+	+	+	+	..	+	+	..	+	+	+	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	+	..	+	+	+	40
41	Tennessee	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	41
42	Texas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	42
43	Utah	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	43
44	Vermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Virginia	+	+	+	+	+	+	+	[18]	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	45
46	Washington	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
47	West Virginia	+	..	+	[20]	[20]	+	+	+	..	..	+	[20]	[20]	[20]	[20]	+	+	+	[20]	+	+	+	+	+	+	+	+	+	+	+	..	47
48	Wisconsin	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
49	Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Alaska	+	..	+	+	+	+	..	+	..	..	..	..	+	..	+	+	..	..	+	..	+	+	+	+	..	..	+	+	+	..	50
51	Canal Zone	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
52	Guam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52
53	Hawaii	No reciprocal relations																													53
54	Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	+	..	+	..	..	..	..	..	54
55	Virgin Islands	No reciprocal relations																													55

This summary should be supplemented by direct communication with the

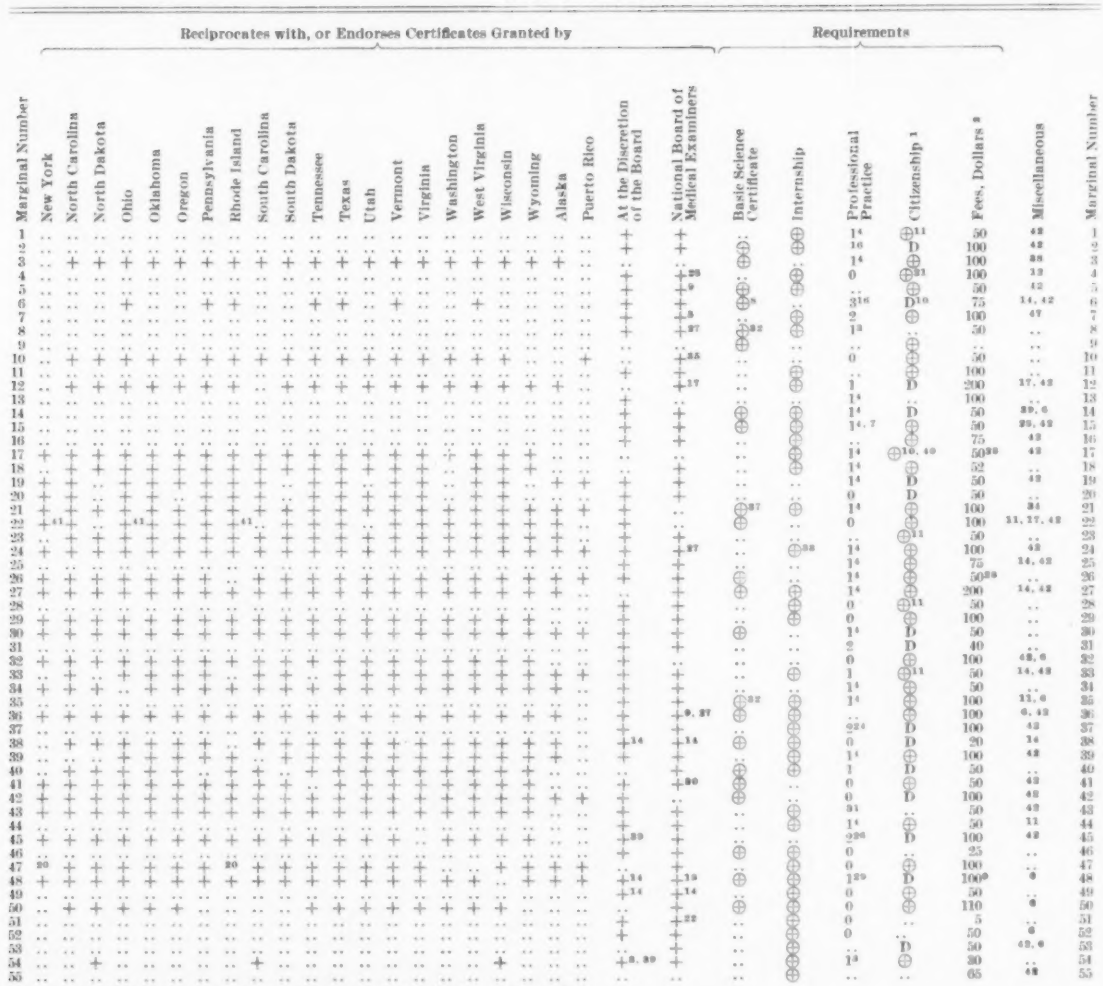
Some states have additional requirements for graduates of schools outside the United States and Canada.

+, indicates reciprocal or endorsement relationships have been established; .. indicates no reciprocal or endorsement relationships have been established. (See column—"At the discretion of the board.")

1. D. Declaration of Intention of citizenship. ⊕, in citizenship column indicates full citizenship required, in other columns it implies a requirement.
2. In most cases there is a small additional recording or registration fee.
3. Year of practice after internship required.
4. Internship accepted in lieu of one year's practice.
5. Two years professional practice required.
6. All applicants must be graduates of a medical school approved by the American Medical Association.
7. Just preceding application.
8. Not required if applicant has been in practice more than 5 years.
9. Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board.
10. Canadian citizens are required to file first papers.
11. Not applicable to citizens of Canada.
12. Oral examination required when application is based on a license dated five or more years prior to filing application.
13. For reciprocity applicants.
14. Oral examination required.
15. Endorsement of National Board of Medical Examiners $35.
16. Active practice for a period of not less than three years immediately preceding date of application.
17. Practical clinical examination required.
18. In lieu of its own examination, certificate of National Board may be accepted in whole or in part.
19. Minimum fee.
20. Licentiates of California, Colorado, Indiana, Iowa, Kansas, Massachusetts, New York, and Rhode Island accepted on reciprocal basis at discretion of board.
21. Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some

sicians licensed on the basis of government credentials and Canadian and foreign licenses. The majority represent recent graduates.

The official figures indicate that 7,455 persons were added to the physician population in 1957 in the United States, Alaska, the Canal Zone, Guam, Hawaii, and Puerto Rico. By reference to table 1, it can be noted that 7,645 had previously been licensed. In 1957 there were about 3,500 deaths of physicians reported to the office of the American Medical Association. When this figure is deducted from the number licensed in 1957 for the first time, it will be seen that the net increase in the physician population in the United States and its territories and possessions was 3,900. This was an increase of 100 over figures for the preceding year.



secretary of the licensing board of the state in which the physician is interested.

state or on proof of requirements similar to those required by California for graduates of foreign medical schools.

22. At discretion of Health Bureau.

23. Oral examination required if applicant's state requires it.

24. If the applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.

25. May require oral examination.

26. Internship accepted at the discretion of the board as the equivalent of two years' practice.

27. Fee, $25.

28. Fee same as applicant's state charges but not less than $50.

29. A two year internship or a year of residency is accepted.

30. Diplomates of National Board not required to have been in practice for three years.

31. Same as required of candidates of state applying for licensure.

32. Not required for licensure by reciprocity.

33. Reciprocity applicants only.

34. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.

35. Applicants issued certificates prior to October, 1953, acceptable.

36. Fee same as applicant's state charges but not less than $75.

37. For matriculants after Oct. 15, 1937.

38. Graduates of foreign medical schools not accepted.

39. Reciprocity extended at discretion of board to candidates whose qualifications would entitle them to admission to examination and who took examination equivalent to that required by this board.

40. Permanent license withheld until completion of citizenship.

41. At the discretion of the board.

42. Graduates of foreign medical schools are not accepted for licensure by reciprocity.

43. Reciprocity extended at discretion of board to states having comparable licensing requirements and which accept Colorado applicants on a substantially equal reciprocal basis.

44. Consecutive years immediately preceding application.

In analyzing table 10, it can be noted that New York had the greatest number of first licentiates, 995. Four other states added more than 300 to their physician population; namely Illinois 360, Ohio 503, Pennsylvania 537, and Texas 346. Increases as compared with 1956 [1] occurred in 25 states and Puerto Rico. None were added in Nevada last year. The most notable increases were in Connecticut, Iowa, New Jersey, Oklahoma, West Virginia, and Puerto Rico, while a marked decrease was evident in Nebraska.

The 7,455 licentiates representing additions to the medical profession in the last calendar year included 5,872 who secured their licenses by written examination and 1,583 by endorsement of credentials. The latter were mainly physicians holding

TABLE 8.—*Candidates Licensed by Reciprocity and Endorsement of Credentials, 1957*

Marginal Number...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
Source of Former License or Credentials																																																								
States Issuing Licenses by Reciprocity of Endorsement	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Govt. Services	National Board of Medical Examiners	Alaska, Canal Zone, Hawaii, Puerto Rico, & Philippine Islands	Canadian and Foreign	Special Endorsement	Total Licensed
Alabama	..	..	3	1	1	..	..	..	..	12	..	..	..	..	..	1	13	..	4	..	..	..	3	1	..	..	..	..	1	..	..	2	..	..	..	..	1	..	3	..	13	2	..	..	..	..	1	..	..	1	9	..	..	..	72
Arizona	..	..	1	8	6	..	..	..	..	1	..	5	1	4	2	..	1	..	3	2	8	9	1	2	..	2	..	..	..	..	..	1	..	3	1	..	2	..	2	1	2	2	1	..	..	..	..	..	3	..	..	16	..	..	..	93
Arkansas	..	..	..	1	1	1	..	..	..	..	..	4	1	..	1	..	4	..	1	..	..	2	1	2	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	4	1	..	..	..	1	..	..	..	..	..	..	..	..	27
California	3	3	3	..	33	3	1	5	8	12	4	137	37	23	23	23	19	3	36	5	72	67	2	71	2	32	..	..	3	1	29	7	8	100	13	19	51	1	2	6	22	31	15	1	16	18	1	31	..	22	585	4	..	..	1,613
Colorado	..	..	1	4	..	..	..	..	..	..	..	5	1	1	9	2	2	..	3	..	3	6	..	13	..	12	..	..	..	..	1	..	..	3	3	..	2	..	..	..	1	5	..	..	2	1	..	1	..	..	26	..	..	..	107
Connecticut	..	..	..	3	2	..	..	1	..	..	..	3	..	..	..	2	..	2	6	2	..	..	1	2	..	..	..	..	..	..	21	..	..	4	..	..	5	1	..	..	2	4	..	..	6	1	..	..	..	..	172	..	..	..	240
Delaware	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	15
District of Columbia	..	..	..	2	..	1	..	..	..	3	..	5	1	1	..	2	2	1	25	2	3	2	..	4	..	..	..	..	..	..	6	2	..	3	..	..	2	2	1	..	2	..	..	..	..	..	..	4	..	1	1	..	15	1	5	..	100
Florida	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Georgia	1	..	3	2	1	1	..	1	..	..	..	1	2	..	1	3	12	..	8	1	1	1	2	5	..	..	..	..	1	..	..	9	..	5	..	..	2	..	3	..	7	2	..	..	5	1	..	1	..	..	15	..	..	..	97
Idaho	..	..	..	2	3	..	..	..	..	..	..	2	..	1	3	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	2	..	..	1	..	1	..	..	9	..	..	..	29
Illinois	..	..	..	13	1	..	..	..	..	3	..	..	7	9	1	1	3	..	7	..	5	6	..	18	..	3	..	..	..	..	1	1	16	1	1	12	..	1	..	4	4	..	..	1	..	8	..	..	1	121	..	..	..	249
Indiana	..	..	1	4	2	1	..	..	1	3	1	15	..	2	4	5	4	..	10	..	5	3	1	8	..	2	..	1	..	..	3	..	..	14	..	..	4	..	..	..	2	2	..	..	4	..	..	5	..	..	..	17	..	..	124
Iowa	..	..	..	..	..	..	..	..	..	..	..	6	1	..	4	1	3	..	2	..	3	3	1	3	..	4	..	1	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	16	1	..	..	59
Kansas	..	..	1	..	..	..	..	..	..	..	1	3	2	4	..	5	..	..	1	1	..	..	..	19	..	8	..	..	..	..	..	1	..	4	2	..	1	..	..	..	2	1	..	..	..	..	..	..	..	..	8	..	..	..	64
Kentucky	..	..	5	3	..	..	..	..	..	4	..	1	4	1	2	..	7	1	2	..	2	3	7	5	..	..	..	..	..	..	..	2	..	12	2	..	2	..	1	..	30	4	..	..	2	..	..	..	..	..	27	1	..	..	130
Louisiana	6	..	7	3	1	..	..	..	..	6	..	3	..	2	2	3	..	..	5	..	1	..	9	2	..	..	..	..	..	..	..	5	5	..	2	5	1	2	..	4	..	10	16	..	..	3	..	1	1	..	..	..	..	..	105
Maine	..	..	..	..	..	3	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	25	..	..	..	42
Maryland	1	..	1	2	..	..	..	15	..	8	..	4	2	2	1	6	4	..	..	..	2	1	1	4	..	..	..	..	1	2	..	..	..	..	1	..	17	..	1	..	6	1	..	..	7	1	..	2	..	..	83	..	..	..	195
Massachusetts	2	..	..	3	..	2	..	1	..	4	..	..	..	1	1	3	2	1	7	..	..	..	..	1	..	1	..	3	3	..	2	2	..	10	1	..	10	8	..	..	3	2	1	3	5	..	..	3	..	..	249	..	..	..	334
Michigan	..	..	1	10	7	..	..	1	1	2	..	24	12	7	1	4	4	2	7	1	..	3	..	16	..	3	..	1	1	..	7	2	..	27	3	1	7	2	..	..	6	4	1	..	2	..	2	15	..	..	24	..	..	..	211
Minnesota	..	..	..	8	1	1	..	..	..	..	..	8	6	10	2	4	4	..	4	..	7	..	..	5	..	10	..	..	1	..	1	2	..	4	..	..	3	..	..	..	3	1	..	..	2	..	1	3	..	..	70	..	..	..	158
Mississippi	..	..	1	..	..	..	..	..	1	..	2	1	..	..	..	..	9	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
Missouri	1	..	5	2	..	..	..	..	..	..	4	1	1	27	4	3	..	..	2	..	2	..	..	..	..	..	..	..	1	..	..	2	1	3	4	..	1	..	..	..	7	..	..	..	1	..	..	..	..	..	5	..	..	..	32
Montana	..	..	..	2	3	..	..	..	..	..	..	..	..	1	3	1	1	1	..	..	4	1	..	4	..	4	..	1	..	..	1	..	..	1	2	..	..	..	1	..	..	..	..	2	..	..	1	..	..	..	22	..	..	..	102
Nebraska	..	..	..	..	2	..	..	..	..	..	..	..	..	1	2	2	..	..	4	1	1	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..	37
Nevada	..	..	..	5	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	24
New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3	..	..	..	15
New Jersey	..	..	1	1	..	1	1	..	..	1	..	6	1	..	..	4	1	1	7	1	2	1	..	2	..	..	..	..	..	..	27	..	..	3	..	..	21	4	..	..	1	..	..	..	1	1	..	..	..	..	22	..	3	..	39
New Mexico	2	1	..	2	4	..	..	..	..	..	..	2	..	2	3	2	2	..	3	1	..	2	1	1	..	..	..	..	..	..	..	..	..	2	4	..	5	..	..	..	2	7	1	..	..	..	1	..	..	..	89	1	..	..	179
New York	2	..	..	9	6	..	..	1	..	..	..	3	8	2	..	7	8	..	6	..	8	8	..	2	..	3	..	10	..	..	8	..	2	..	..	34	..	..	..	4	6	1	4	15	..	2	5	..	..	921	7	5	..	1097
North Carolina	1	..	1	2	1	..	..	1	..	13	..	1	1	..	2	2	1	..	3	..	2	1	..	1	..	..	..	1	..	..	1	..	..	2	..	..	11	..	5	..	7	1	..	..	12	..	..	..	..	..	2	..	..	..	75
North Dakota	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	8
Ohio	1	..	..	8	1	1	1	3	1	5	1	17	13	5	4	12	4	2	10	..	17	5	1	35	..	4	..	1	2	..	7	4	..	2	..	..	29	1	1	2	8	4	..	1	7	2	6	5	..	..	92	..	..	..	325
Oklahoma	1	..	1	2	1	..	..	1	..	1	..	2	1	..	3	..	1	..	1	1	..	..	2	2	..	1	..	..	..	..	..	..	..	1	..	..	1	..	..	..	5	5	..	..	1	..	..	..	..	..	6	..	..	..	40
Oregon	..	1	..	15	1	..	..	..	..	..	..	5	2	6	2	..	..	..	2	..	2	8	..	1	..	6	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	3	1	..	..	8	..	3	..	..	18	1	..	..	89
Pennsylvania	4	..	..	4	..	2	..	1	4	2	..	11	1	1	1	1	4	..	10	1	6	2	..	6	..	2	..	..	6	..	9	2	..	13	..	..	..	..	1	..	2	6	..	..	6	1	1	1	..	4	114	1	..	..	230
Rhode Island	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	26	..	..	..	33
South Carolina	..	..	..	1	..	..	..	..	..	6	..	1	1	..	..	..	3	..	1	..	1	..	2	9	..	7	..	..	..	..	1	11	..	1	..	..	..	..	..	..	4	..	..	..	2	..	..	1	..	..	4	..	..	..	38
South Dakota	..	..	..	1	1	..	..	..	..	..	..	1	1	3	..	..	1	..	..	2	9	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	32
Tennessee	3	..	4	3	1	..	..	..	..	4	..	2	..	..	1	4	4	..	9	2	1	3	19	2	..	1	..	..	1	..	2	3	..	3	1	..	1	..	2	..	..	4	..	..	2	..	1	..	..	..	13	..	..	..	96
Texas	2	..	7	10	1	3	..	1	1	3	..	24	..	1	6	8	34	..	5	3	6	4	3	25	1	5	..	..	..	..	5	3	1	6	11	1	10	1	3	2	12	..	..	..	2	3	..	4	..	1	..	..	..	..	..	218
Utah	..	..	..	8	..	1	..	..	..	..	..	4	..	1	1	2	..	..	3	..	..	..	..	2	..	1	..	..	..	..	..	..	..	4	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	14	..	..	..	45
Vermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	23	..	1	..	32
Virginia	..	..	2	2	..	1	..	3	..	3	..	..	1	1	..	1	3	..	9	1	..	2	1	2	..	..	..	1	..	..	4	9	..	5	..	..	4	..	3	..	14	3	..	1	..	..	1	..	..	..	42	1	..	..	120
Washington	..	..	2	9	2	..	..	..	..	1	..	5	1	6	3	..	2	..	7	..	3	18	5	5	..	16	..	..	..	..	2	..	..	2	3	3	1	..	..	..	3	..	1	..	3	..	..	..	..	..	31	2	6	..	142
West Virginia	..	..	..	1	..	..	..	..	..	..	..	3	..	1	1	2	2	..	4	1	2	..	..	1	..	..	..	1	..	..	3	3	..	4	1	..	12	..	2	..	2	2	1	..	9	..	..	..	..	..	17	..	..	..	75
Wisconsin	..	..	..	1	2	..	..	..	1	..	..	20	2	7	..	1	3	..	3	..	9	12	..	8	..	4	..	..	..	..	3	1	1	9	..	1	..	..	1	2	2	2	..	..	4	..	..	..	..	19	24	..	..	..	142
Wyoming	..	..	..	2	5	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	1	1	..	..	..	3	..	..	..	..	1	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	..	..	..	23
Alaska, Canal Zone, Guam, Hawaii, and Puerto Rico	..	..	..	1	..	..	..	1	..	2	..	..	..	..	1	..	..	1	4	..	1	..	..	3	..	1	..	..	..	..	3	..	..	..	1	..	..	..	..	..	1	3	..	1	..	2	..	2	..	..	51	1	1	..	81
Totals	30	5	51	162	92	23	3	37	18	101	7	341	113	113	119	119	170	17	224	36	183	188	61	288	3	137	0	9	37	2	160	90	14	286	62	30	265	21	39	15	207	136	29	13	127	46	26	96	0	49	3,027	38	21	0	7,486
Marginal Number...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55

the certificate of the National Board of Medical Examiners and using the certificate as the basis of licensure by endorsement of credentials.

Increases in the physician population arranged in nine geographical divisions in the United States are shown in table 11. The Middle Atlantic, East North Central, and South Atlantic groups had the greatest number of first licentiates—1,718, 1,466, and 1,262 respectively. More than 400 were added in four other groups—West South Central, 751; West North Central, 708; East South Central, 480; and New England, 459. The Pacific states added 380, the Mountain states 147, and the territories and outlying possessions 104.

In the past 23 years (1935-1957), 150,082 physicians have been added to the medical profession, as determined by the number who received licenses for the first time. Figures for each year during this period are presented in table 12. Of the 150,082 additions, 125,097 were licensed after a successful written examination and 24,985 by reciprocity or endorsement of credentials. The total number of licenses issued in the same period was 267,246.

Registration of Physicians, 1904-1957

A recapitulation of totals for 1957 and for all previous years since 1904 is included in table 13. This tabulation includes for each year the number of physicians examined and registered by written examination, the annual percentage of failures, the number registered annually by reciprocity or endorsement of credentials, and the total registered. The total number of physicians registered from 1904 to 1933 remained somewhat constant, except in 1918, when 4,231 were licensed, the lowest registration in 54 years. This decrease was due to a sudden withdrawal of physicians from civilian life in World War 1.

After 1933 there was an upward trend for a time, followed by a decline in the years 1940 to 1942 inclusive. There was a noticeable increase in 1943 as the result of the accelerated medical school curriculum and the efforts made to maintain civilian care during World War II at as high a level as possible while still providing for the needs of the military. In 1943 more physicians were registered than in any previous year. In the succeeding two years the total figure declined, but in 1946 there were 6,696 more registered than in 1943. Separation from service of a large number of medical officers and their subsequent licensure by endorsement of credentials indicating their return to private practice in states other than those in which they were licensed accounts in large part for the increase. This increase was also occasioned by the licensure of recent graduates who had entered military service on completion of the internship and before securing state licensure.

In 1904, the first year shown, the percentage of failures was 19.3. This was an era of proprietary medical schools. Beginning in 1913 the percentage of failures gradually dropped each year until 1930, when 5.7% failed. Beginning in 1936 the percentage of failures began to rise, reaching another peak of 20.7% in 1940. This was the result of the increase in the number of foreign-trained physicians seeking licensure in the United States, many of whom are not successful until after repeated attempts at licensure examinations. Since 1942 the percentage of failures has been somewhat reduced, although it still reflects the unsuccessful attempts of foreign-trained physicians, graduates of unapproved medical schools, and others. The increase in the number of foreign-trained physicians examined for licensure in 1957, described in more detail later in this study, accounts for the increase in the percentage of failures in 1957.

This table again refers to examinations given annually rather than to individuals examined. A candidate who fails more than once in a state in a given year is counted as one failure, but should he again fail in a succeeding year, this fact is computed among the failures for that year. Likewise, a successful candidate securing a license in more than one state in a given year is counted in both states and is likewise counted if he passed at examinations in later years. The figures in this table give only a fair approximation of the number of physicians added to the profession.

Graduates of Approved Schools and Others Registered, 1922-1957

Table 14 reflects for two categories the number of physicians registered since 1922. While prior to 1928 medical schools were classified by the Council on Medical Education and Hospitals of the American Medical Association as A, B, and C, for purposes of this table the schools are arranged in two groups. The figures in the first group include graduates of medical schools rated in class A and B prior to 1928 and schools classified as approved institutions since 1928. The second group refers to class C graduates, graduates of medical schools classified as unapproved since 1928, graduates of foreign medical faculties, and graduates of schools of osteopathy given recognition by medical licensing boards. In 1928, the classification of medical schools in A, B, and C groups was discontinued by the Council, and a list of approved medical schools has since been maintained.

In 1957 there were 15,255 candidates registered, of whom 13,330, or 87.4%, represented graduates of approved schools, and 1,925, or 12.1%, were in the second group. In the 36 years recorded in this table, 360,563 were registered, including 324,746 (90.1%) graduates of medical schools indicated as in the approved group and 35,817 others (9.9%).

Marginal Numbers	School	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	ALABAMA																			
1	Medical College of Alabama, Birmingham	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..
	ARKANSAS																			
2	University of Arkansas School of Medicine, Little Rock	3	1	..	4	1	..	..	..	..	3	..	..	1	..	1	5	7	..	2
	CALIFORNIA																			
3	College of Medical Evangelists, Loma Linda—Los Angeles	1	1	2	8	3	..	..	3	..	4	2	5	6	..	1	1	2	1	4
4	University of Southern California School of Medicine, L. A.	..	1	..	2	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1
5	Stanford University School of Medicine, San Francisco	..	2	..	11	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..
6	University of California School of Medicine, Los Angeles	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	University of California School of Medicine, San Francisco	..	1	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
	COLORADO																			
8	University of Colorado School of Medicine, Denver	1	4	..	30	..	2	1	..	..	2	2	1	2	..	..	..	1	..	..
	CONNECTICUT																			
9	Yale University School of Medicine, New Haven	..	1	..	23	2	23	..	1	..	2	1	4	..	..	..	2	..	..	4
	DISTRICT OF COLUMBIA																			
10	Georgetown University School of Medicine	..	..	..	23	..	11	1	7	..	1	..	1	..	..	..	1	1	..	14
11	George Washington University School of Medicine	..	2	..	22	..	2	..	5	..	4	..	5	..	1	..	1	..	1	26
12	Howard University College of Medicine	1	..	..	22	..	1	..	12	..	..	..	..	1	..	..	..	..	..	2
	FLORIDA																			
13	University of Miami School of Medicine, Coral Gables	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	GEORGIA																			
14	Emory University School of Medicine, Emory University	2	..	..	6	..	..	..	1	..	2	..	1	..	..	..	2	2	..	2
15	Medical College of Georgia, Augusta	6	..	..	3	..	..	..	1	..	..	..	3	..	..	..	1	3	..	2
	ILLINOIS																			
16	Chicago Medical School	1	..	..	34	..	1	..	..	..	..	..	10	2	..	..	..	..	..	..
17	Northwestern University Medical School, Chicago	..	3	..	56	7	3	..	1	..	3	1	26	4	4	4	1	2	..	4
18	Stritch School of Medicine of Loyola University, Chicago	..	1	..	32	2	..	..	2	..	..	..	11	4	1	..	..	..	..	3
19	University of Chicago, The School of Medicine	1	1	..	9	2	3	..	2	..	..	..	15	..	6	..	..	..	..	1
20	University of Illinois College of Medicine, Chicago	..	8	1	89	..	1	..	2	..	..	2	17	3	..	1	1	2	..	..
	INDIANA																			
21	Indiana University School of Medicine, Bloomington-Indi'plis	..	1	1	40	1	..	..	..	..	1	..	7	..	1	2	4	..	..	1
	IOWA																			
22	State University of Iowa College of Medicine, Iowa City	..	2	..	25	1	..	..	1	..	..	1	9	2	2	..	..	1	..	2
	KANSAS																			
23	University of Kansas School of Medicine, Lawrence-K. City	..	2	..	25	8	..	..	1	..	1	3	1	4	4	..	1	2	1	1
	KENTUCKY																			
24	University of Louisville School of Medicine, Louisville	1	1	..	25	1	2	..	2	..	2	..	2	7	1	3	2	4	..	5
	LOUISIANA																			
25	Louisiana State University School of Medicine, New Orleans	3	..	1	4	1	..	..	2	..	3	..	1	..	1	..	3	2	..	1
26	Tulane University of Louisiana School of Medicine, New Orleans	12	2	4	14	1	2	..	..	..	8	..	2	3	2	..	4	4	..	1
	MARYLAND																			
27	Johns Hopkins University School of Medicine, Baltimore	1	2	1	10	1	4	1	3	..	1	1	2	6	..	..	1	3	..	4
28	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	1	1	..	18	2	1	..	10	..	7	..	5	1	1	1	2	3	..	6
	MASSACHUSETTS																			
29	Boston University School of Medicine	..	..	..	15	1	7	..	1	..	..	..	3	..	..	..	2	..	1	4
30	Harvard Medical School, Boston	1	4	..	40	2	14	1	1	..	3	..	3	..	1	1	5	1	3	3
31	Tufts University School of Medicine, Boston	..	2	..	30	1	14	..	1	..	4	..	1	..	2	1	..	..	11	..
	MICHIGAN																			
32	University of Michigan Medical School, Ann Arbor	..	4	..	46	3	1	..	2	..	..	..	6	2	..	1	2	1	1	2
33	Wayne State University College of Medicine, Detroit	..	4	1	22	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
	MINNESOTA																			
34	University of Minnesota Medical School, Minneapolis	..	4	3	48	5	1	..	1	..	3	..	4	2	1	..	3	..	..	..
	MISSISSIPPI																			
35	University of Mississippi School of Medicine, Jackson	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	MISSOURI																			
36	University of Missouri School of Medicine, Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
37	St. Louis University School of Medicine	1	1	1	30	3	1	..	2	..	1	..	17	4	1	5	4	2	..	4
38	Washington University School of Medicine, St. Louis	..	..	1	35	2	2	..	1	..	3	1	6	..	2	8	1	..	1	1
	NEBRASKA																			
39	Creighton University School of Medicine, Omaha	1	3	..	23	2	1	..	..	..	..	1	1	..	..	12	1	1	..	..
40	University of Nebraska College of Medicine, Omaha	..	3	1	29	11	1	..	..	..	..	1	3	2	4	2	..	..	..	..
	NEW YORK																			
41	Albany Medical College	..	..	..	11	..	2	1	..	..	..	1	2	..	1	..	..	..	..	3
42	University of Buffalo School of Medicine	..	1	..	19	..	1	..	..	..	..	..	1	..	..	..	2	..	..	1
43	Columbia University College of Physicians and Surgeons, New York	..	2	..	37	6	18	..	1	..	2	1	1	..	1	..	4	1	2	6
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	
Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Guam, Hawaii, and Puerto Rico	Totals	Marginal Number
1	..	..	..	1	..	..	..	..	..	1	1	1	..	1	1	..	2	..	..	..	2	1	..	..	..	..	..	..	..	..	19	1
..	1	..	1	6	..	..	..	..	1	..	1	..	..	..	2	..	2	..	..	..	4	7	..	..	2	1	1	..	..	1	58	2
2	7	2	..	..	..	1	2	..	..	..	1	1	..	5	1	6	1	..	1	..	7	4	1	..	..	4	..	1	..	1	92	3
..	..	..	..	..	..	..	4	..	1	..	1	..	..	1	..	1	..	..	..	..	..	1	1	..	..	..	..	..	1	1	19	4
..	1	3	..	..	..	..	1	..	..	1	3	..	..	2	..	2	..	..	..	..	..	..	2	..	..	..	..	..	..	1	32	5
..	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	6
2	..	1	..	..	1	..	..	..	..	1	4	..	..	..	..	1	..	..	1	..	1	1	1	..	1	1	..	..	..	1	21	7
..	7	..	..	..	1	1	1	..	..	3	6	..	..	..	1	1	..	..	..	1	..	1	..	..	..	1	..	1	5	..	76	8
7	1	4	..	..	..	..	1	..	1	1	22	..	..	6	..	..	8	..	1	..	1	..	1	3	2	..	1	..	..	2	125	9
12	2	6	1	1	..	..	..	..	11	..	33	1	1	3	1	..	6	3	..	..	1	..	..	..	13	..	..	2	..	2	159	10
1	2	3	..	..	1	..	..	1	3	..	12	..	..	5	1	1	11	1	1	..	1	..	1	1	14	3	2	2	1	4	141	11
2	7	..	..	1	..	..	..	..	1	..	7	1	..	7	..	..	3	..	..	..	..	..	..	..	1	..	..	1	..	..	70	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	13
3	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	..	1	..	2	..	2	2	..	..	..	..	..	..	..	..	35	14
..	..	..	..	..	..	..	..	..	..	..	..	2	..	5	1	..	1	..	4	..	2	..	..	..	1	..	..	..	1	1	37	15
..	..	1	..	..	..	..	..	..	7	..	41	..	..	4	..	..	..	..	..	..	..	1	..	..	..	1	..	2	..	..	105	16
2	3	8	..	2	2	1	..	1	..	3	8	..	1	9	2	5	7	..	..	2	3	8	7	..	1	6	2	1	..	2	205	17
..	6	2	1	..	..	..	..	..	..	..	3	..	..	4	..	1	2	..	..	..	..	1	..	..	..	1	..	11	..	..	88	18
4	3	4	..	1	..	..	..	..	3	1	20	1	..	1	..	1	5	..	..	..	1	1	1	..	..	3	..	2	..	..	112	19
1	6	9	1	4	..	..	..	..	3	1	3	..	..	9	..	1	5	..	1	2	3	3	..	..	..	1	1	10	..	1	142	20
1	8	4	1	1	..	..	..	..	1	..	9	1	..	14	1	1	1	..	1	1	..	1	..	..	..	..	..	2	1	..	108	21
2	8	9	..	2	1	2	..	..	..	2	1	..	..	1	..	7	3	..	..	..	..	2	2	..	1	6	1	6	..	..	102	22
2	1	2	..	25	3	1	..	..	..	3	..	2	..	4	2	3	..	..	..	..	..	3	..	..	..	5	1	..	1	1	113	23
2	1	3	1	2	1	2	1	..	1	2	9	2	..	11	..	..	1	..	..	..	3	..	1	..	1	..	2	1	..	..	105	24
1	..	2	1	..	..	..	..	..	..	..	3	..	..	1	1	..	1	..	1	..	..	9	..	..	2	..	1	1	..	..	46	25
2	3	2	7	3	1	..	..	..	1	1	5	1	..	1	..	..	2	..	1	1	4	22	1	..	1	..	..	1	..	1	120	26
4	3	3	2	2	..	..	..	..	3	1	8	1	..	3	..	1	7	..	..	..	6	2	2	..	3	3	1	..	..	2	98	27
3	..	1	..	..	..	..	..	..	1	2	7	1	..	6	..	..	2	..	1	..	1	3	1	2	3	2	4	2	..	3	104	28
34	..	2	..	..	..	..	..	3	2	..	19	..	..	4	..	1	1	3	..	..	2	1	..	1	1	..	1	..	..	..	109	29
51	1	4	1	3	..	..	..	6	4	..	30	..	..	8	..	3	3	..	..	..	3	3	1	5	2	3	1	3	..	2	220	30
55	2	..	..	2	..	..	1	3	4	..	17	..	..	6	..	..	6	6	..	..	1	2	..	..	1	1	3	1	..	3	181	31
..	3	5	..	2	..	..	..	..	1	..	7	2	..	11	..	1	6	..	..	..	1	6	..	..	..	4	2	9	..	2	133	32
1	1	2	..	..	2	1	..	..	..	..	1	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	1	42	33
..	2	..	..	..	1	1	1	1	..	1	6	1	..	5	..	2	1	..	..	6	..	1	..	1	1	12	..	6	1	2	127	34
..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	35
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	36
3	11	2	..	3	3	1	..	..	..	..	4	..	..	10	2	1	2	..	..	1	1	2	2	..	..	8	..	3	..	2	138	37
..	3	1	..	1	..	1	..	1	1	1	7	..	..	7	1	..	3	..	..	1	1	5	..	..	1	3	2	5	..	3	112	38
1	1	5	..	1	1	6	..	..	..	..	2	..	..	3	..	1	1	..	..	5	..	3	1	..	..	6	..	3	2	3	91	39
..	3	9	..	..	4	..	..	..	..	..	3	..	1	2	2	7	1	..	..	5	1	5	1	..	..	13	..	4	1	2	121	40
5	1	4	..	..	..	..	..	..	3	..	37	..	..	2	1	..	3	1	..	..	..	1	..	..	..	1	..	..	..	1	81	41
1	1	1	..	..	..	..	..	..	4	..	40	..	1	3	..	..	9	1	..	..	1	..	..	..	2	..	2	1	..	2	94	42
14	3	3	..	3	..	..	..	1	7	..	91	1	..	10	..	1	6	1	1	..	1	1	1	2	3	..	1	2	..	1	236	43
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	

Marginal Numbers		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	NEW YORK																			
44	Cornell University Medical College, New York	..	3	..	21	2	7	..	..	..	..	..	3	..	1	..	1	..	1	4
45	New York Medical College, Flower and Fifth Avenue Hospitals	1	1	..	41	1	20	..	..	..	..	..	2	..	1	1	2	..	1	8
46	New York University College of Medicine	1	2	..	44	..	13	..	..	..	1	1	4	..	1	1	2	2	..	9
47	State University of New York College of Medicine, N. Y. C.	..	..	..	32	..	13	1	..	..	..	..	1	..	..	..	..	1	1	3
48	University of Rochester School of Medicine and Dentistry	..	..	..	15	1	4	..	..	..	1	1	4	1	2	1	1	..	1	1
49	State University of New York College of Medicine, Syracuse	..	..	..	8	1	5	..	..	..	1	..	..	..	..	..	..	..	..	3
	NORTH CAROLINA																			
50	University of North Carolina School of Medicine, Chapel Hill	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
51	Duke University School of Medicine, Durham	3	1	..	16	..	1	..	..	..	1	..	1	..	1	..	3	3	1	2
52	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem	1	1	..	2	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..
	OHIO																			
53	University of Cincinnati College of Medicine	..	1	..	25	2	1	..	..	..	1	..	4	3	1	..	7	..	..	2
54	Western Reserve University School of Medicine, Cleveland	..	1	..	26	1	..	..	1	..	..	..	6	4	2	2	2	1	..	1
55	Ohio State University College of Medicine, Columbus	..	..	..	41	..	..	..	1	..	2	..	5	2	..	1	1	1	..	1
	OKLAHOMA																			
56	University of Oklahoma School of Medicine, Oklahoma City	..	1	1	17	2	..	..	..	..	..	1	2	..	..	2	3	5	..	..
	OREGON																			
57	University of Oregon Medical School, Portland	1	1	..	30	1	..	..	..	..	..	3	..	..	..	..	..	1	..	..
	PENNSYLVANIA																			
58	Hahnemann Medical College and Hospital of Philadelphia	..	..	..	14	..	2	..	..	..	..	..	1	1	..	..	2	1	1	6
59	Jefferson Medical College of Philadelphia	1	1	..	25	3	5	2	..	..	1	1	4	1	..	1	1	..	1	8
60	Temple University School of Medicine, Philadelphia	..	..	..	20	1	4	1	..	..	1	..	4	..	..	..	1	1	1	1
61	University of Pennsylvania School of Medicine, Philadelphia	1	1	2	29	3	2	2	2	..	1	..	4	3	..	1	1	2	..	4
62	Woman's Medical College of Pennsylvania, Philadelphia	..	1	..	13	..	2	..	..	..	1	1	1	..	1	..	2	..	..	..
63	University of Pittsburgh School of Medicine	..	..	..	13	..	..	..	..	..	1	..	3	1	1	..	..	..	..	4
	SOUTH CAROLINA																			
64	Medical College of South Carolina, Charleston	2	..	..	3	..	..	..	1	..	2	..	2	..	..	..	1	4	..	2
	TENNESSEE																			
65	University of Tennessee College of Medicine, Memphis	13	2	4	15	1	..	..	1	..	4	..	3	2	..	3	30	9	1	4
66	Meharry Medical College, Nashville	1	..	..	16	..	..	..	3	..	1	..	..	4	..	2	1	..	..	7
67	Vanderbilt University School of Medicine, Nashville	2	..	..	10	..	1	..	..	..	3	..	1	..	..	2	5	2	..	1
	TEXAS																			
68	University of Texas Southwestern Medical School, Dallas	..	..	..	6	1	..	..	..	..	1	..	..	..	..	..	..	5	..	..
69	University of Texas Medical Branch, Galveston	..	2	..	13	1	3	..	..	..	..	..	2	..	..	..	1	9	..	1
70	Baylor University College of Medicine, Houston	1	..	1	11	3	..	..	..	..	..	..	1	2	..	1	2	3	..	..
	UTAH																			
71	University of Utah School of Medicine, Salt Lake City	..	2	..	16	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..
	VERMONT																			
72	University of Vermont College of Medicine, Burlington	..	..	..	7	..	4	..	2	..	..	..	..	1	..	..	1	..	2	1
	VIRGINIA																			
73	University of Virginia School of Medicine, Charlottesville	..	1	..	10	1	3	1	1	..	4	..	1	2	..	..	2	..	..	5
74	Medical College of Virginia, Richmond	2	..	..	8	1	3	..	1	..	2	..	..	1	..	1	..	3	..	2
	WASHINGTON																			
75	University of Washington School of Medicine, Seattle	..	..	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	WISCONSIN																			
76	University of Wisconsin Medical School, Madison	..	..	..	16	..	..	..	..	..	1	1	3	3	..	..	1	..	..	..
77	Marquette University School of Medicine, Milwaukee	1	3	..	22	..	1	..	2	..	..	..	6	4	6	..	..	1	..	1
	PUERTO RICO																			
78	University of Puerto Rico School of Medicine, San Juan	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
	CANADA																			
79	University of Alberta Faculty of Medicine, Edmonton	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
80	University of British Columbia School of Medicine, Vancouver	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
81	University of Manitoba Faculty of Medicine, Winnipeg	..	..	..	9	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..
82	Dalhousie University Faculty of Medicine, Halifax	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
83	University of Ottawa Faculty of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
84	Queen's University Faculty of Medicine, Kingston	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
85	University of Western Ontario Faculty of Medicine, London	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
86	University of Toronto Faculty of Medicine	..	..	..	11	..	..	..	1	..	..	..	1	2	1	..	..	..	1	1
87	McGill University Faculty of Medicine, Montreal	..	1	..	16	..	3	..	1	..	..	..	..	..	..	..	..	..	2	1
88	University of Montreal Faculty of Medicine	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
89	Laval University Faculty of Medicine, Quebec	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
90	University of Saskatchewan College of Medicine, Saskatoon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	OTHERS																			
91	Foreign medical faculties	1	..	..	..	..	19	1	16	..	2	..	..	21	3	..	..	..	5	1
92	Extinct medical schools	1	1	..	10	..	1	..	..	..	..	..	..	..	..	2	1	1	1	1
93	Unapproved medical schools	..	1	2	5	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..
94	Schools of osteopathy	..	..	..	..	9	..	1	..	..	..	..	..	9	..	..	..	..	..	..
95	Totals	72	93	27	1,613	107	240	15	100	0	97	29	249	124	59	64	130	105	42	195
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	
Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Guam, Hawaii, and Puerto Rico	Totals	Marginal Number
8	2	2	..	..	1	..	..	1	3	..	46	..	..	5	1	2	4	..	..	..	..	1	1	..	2	..	1	2	..	..	125	44
4	3	4	1	..	..	..	..	..	10	..	60	..	..	4	..	..	8	3	..	..	2	..	..	..	4	..	1	1	..	..	184	45
8	..	2	1	1	..	..	..	1	9	..	124	..	..	3	..	..	6	..	..	..	1	..	..	..	2	..	..	..	1	..	240	46
7	1	2	..	1	2	..	..	..	12	1	138	1	..	5	1	..	4	1	..	..	..	..	1	..	1	2	..	2	..	2	236	47
3	..	4	..	..	1	..	1	2	1	1	22	1	..	5	..	..	3	1	..	..	..	2	..	2	..	..	..	1	1	2	86	48
2	1	..	..	..	..	..	..	..	2	..	57	..	..	2	..	1	2	..	..	..	1	..	..	..	3	2	..	..	1	1	92	49
..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	50
3	1	1	..	..	..	..	..	..	..	..	7	7	..	1	1	..	2	..	4	..	2	3	3	..	4	..	1	..	..	..	73	51
3	1	1	1	1	..	..	..	..	..	..	2	..	..	1	..	..	..	..	4	..	..	..	..	..	1	..	1	..	1	..	25	52
2	7	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	2	..	..	2	1	3	3	..	..	72	53
4	6	2	..	2	..	..	..	..	1	2	3	1	1	1	..	..	5	..	1	..	1	3	4	..	1	1	..	2	..	..	88	54
2	7	1	..	1	1	..	..	..	..	..	3	..	..	..	..	..	3	..	..	..	1	2	..	..	2	..	1	1	..	..	80	55
1	3	..	..	4	2	..	1	..	..	4	..	..	1	1	1	..	..	..	..	..	1	12	..	..	..	3	1	..	..	2	71	56
1	1	1	..	..	1	..	..	..	..	..	..	..	..	1	..	20	..	..	..	..	..	2	1	..	..	7	..	..	..	..	72	57
3	1	2	..	2	..	..	..	..	9	1	9	..	..	3	..	..	9	..	..	..	..	5	..	..	2	..	3	1	..	1	79	58
5	4	..	..	1	1	..	..	..	15	..	14	1	..	7	..	..	12	..	..	1	2	2	..	..	2	2	4	1	..	1	130	59
7	3	2	..	1	..	..	..	..	2	..	15	1	..	5	1	1	12	2	2	..	..	..	..	1	..	1	3	..	1	1	96	60
9	6	3	..	2	1	..	..	..	10	2	13	5	..	11	..	..	8	..	3	..	1	1	1	1	2	2	2	1	1	..	143	61
1	..	..	..	..	..	..	..	..	1	..	12	1	..	1	..	..	8	..	..	1	..	..	..	..	2	1	1	1	..	1	53	62
3	1	2	..	..	..	..	..	..	1	1	4	1	..	4	1	..	2	..	..	..	..	1	..	..	2	..	4	..	..	..	50	63
..	..	..	..	..	..	1	..	2	..	..	1	6	..	1	..	..	1	..	..	..	1	3	..	..	3	..	2	..	..	..	38	64
2	4	2	6	7	..	1	..	1	..	3	2	4	..	4	5	..	..	..	4	..	10	9	..	..	10	2	2	2	..	2	174	65
2	6	..	1	3	..	1	..	..	1	1	1	2	..	6	..	1	3	..	..	..	2	4	..	..	2	1	..	1	..	..	73	66
1	..	1	1	1	..	..	..	..	..	..	5	3	..	4	2	1	..	..	..	..	3	5	..	..	3	1	..	..	1	..	59	67
..	..	1	..	..	..	..	..	..	..	1	..	..	..	2	1	..	..	1	..	1	2	..	1	..	..	..	..	..	..	..	23	68
..	3	1	..	1	..	..	..	..	..	5	2	..	1	..	2	..	3	..	..	..	1	..	..	..	2	..	2	1	..	1	57	69
2	..	..	..	2	..	..	..	..	..	2	2	..	..	..	2	3	3	..	..	..	1	..	..	1	1	..	..	2	..	2	48	70
1	..	..	..	1	2	..	1	..	..	..	3	..	..	..	..	1	..	..	..	..	..	..	4	..	..	..	1	..	2	..	36	71
8	1	1	..	..	..	..	..	1	1	..	24	..	..	4	..	..	..	3	..	..	..	1	..	9	1	..	..	..	..	..	72	72
2	..	1	..	2	..	..	..	..	..	..	13	5	..	3	..	..	2	..	..	..	4	2	..	..	3	1	1	3	..	..	73	73
4	..	3	1	..	..	..	..	..	1	..	3	7	..	6	1	..	4	..	2	..	2	1	..	..	1	1	8	..	..	..	69	74
..	..	..	1	..	2	..	..	..	..	..	1	..	..	..	..	1	1	..	..	1	..	1	..	..	..	12	1	..	..	1	37	75
1	7	4	..	2	..	..	..	..	..	..	3	..	..	3	..	6	3	..	1	..	..	3	..	..	..	..	..	10	..	..	68	76
3	7	1	..	..	..	..	..	..	1	1	7	1	..	1	..	1	2	..	..	..	1	1	..	..	..	..	1	4	..	2	81	77
..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	9	19	78
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	79
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	80
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	2	2	..	..	..	..	20	81
1	..	1	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	82
1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	6	83
..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	4	84
..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	85
1	..	..	..	..	..	..	..	..	..	..	5	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	26	86
5	4	1	..	1	1	..	..	3	..	1	9	..	1	1	1	..	..	1	..	..	1	2	1	1	1	3	1	..	..	..	63	87
..	..	..	..	..	..	..	..	2	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	88
1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	89
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	90
..	23	1	..	..	..	1	..	7	23	..	1	1	..	19	..	..	..	4	..	3	..	1	..	2	..	7	..	13	..	5	180	91
..	3	..	1	..	..	1	..	..	..	2	1	..	..	1	..	..	2	..	..	..	..	1	..	..	1	..	1	1	..	..	34	92
..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	..	1	..	2	..	..	28	93
4	..	..	..	..	..	..	..	2	10	..	..	..	..	10	..	..	..	..	..	..	..	32	..	..	..	..	..	3	..	..	80	94
334	211	158	32	102	37	24	15	39	179	53	1,097	75	8	325	40	89	220	33	38	32	96	218	45	32	120	142	75	142	23	81	7,486	95
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	

Graduates of Unapproved Medical Schools Registered, 1953-1957

Graduates of institutions that were classified by the Council on Medical Education and Hospitals of the American Medical Association as unapproved were registered in 26 states, the District of Columbia, and the territories and outlying possessions in the past five years. Figures are reported separately in table 15 for those licensed after written examination and those licensed by reciprocity or endorsement of credentials. The table also includes a column combining the figures for these two groups. In

TABLE 10.—*Licentiates Representing Additions to the Medical Profession, 1957*

	Examination	Reciprocity and Endorsement	Total
Alabama	92	7	99
Arizona	11	1	12
Arkansas	78	0	78
California	113	134	247
Colorado	84	7	91
Connecticut	69	82	151
Delaware	7	0	7
District of Columbia	16	14	30
Florida	147	0	147
Georgia	224	1	225
Idaho	3	1	4
Illinois	305	55	360
Indiana	169	9	178
Iowa	124	5	129
Kansas	106	2	108
Kentucky	85	4	89
Louisiana	233	0	233
Maine	34	11	45
Maryland	281	18	299
Massachusetts	22	154	176
Michigan	261	6	267
Minnesota	173	23	196
Mississippi	122	1	123
Missouri	234	7	241
Montana	4	0	4
Nebraska	12	0	12
Nevada	0	0	0
New Hampshire	8	7	15
New Jersey	105	81	186
New Mexico	5	4	9
New York	231	764	995
North Carolina	208	1	209
North Dakota	6	0	6
Ohio	462	41	503
Oklahoma	94	0	94
Oregon	39	8	47
Pennsylvania	487	50	537
Rhode Island	41	14	55
South Carolina	77	1	78
South Dakota	16	0	16
Tennessee	167	2	169
Texas	346	0	346
Utah	20	6	26
Vermont	7	10	17
Virginia	241	2	243
Washington	69	17	86
West Virginia	20	4	24
Wisconsin	129	9	138
Wyoming	1	0	1
Alaska	1	0	1
Canal Zone	0	2	2
Hawaii	7	7	14
Guam	0	2	2
Puerto Rico	76	9	85
Virgin Islands	0	0	0
Totals	5,872	1,583	7,455

TABLE 11.—*Licentiates Representing Additions to the Medical Profession Grouped in Geographical Divisions, 1957*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine	34	11	45
New Hampshire	8	7	15
Vermont	7	10	17
Massachusetts	22	154	176
Rhode Island	41	14	55
Connecticut	69	82	151
Totals	181	278	459
Middle Atlantic			
New York	231	764	995
New Jersey	105	81	186
Pennsylvania	487	50	537
Totals	823	895	1,718
East North Central			
Ohio	462	41	503
Indiana	169	9	178
Illinois	305	55	360
Michigan	261	6	267
Wisconsin	129	9	138
Totals	1,326	120	1,446
West North Central			
Minnesota	173	23	196
Iowa	124	5	129
Missouri	234	7	241
North Dakota	6	0	6
South Dakota	16	0	16
Nebraska	12	0	12
Kansas	106	2	108
Totals	671	37	708
South Atlantic			
Delaware	7	0	7
Maryland	281	18	299
District of Columbia	16	14	30
Virginia	241	2	243
West Virginia	20	4	24
North Carolina	208	1	209
South Carolina	77	1	78
Georgia	224	1	225
Florida	147	0	147
Totals	1,221	41	1,262
East South Central			
Kentucky	85	4	89
Tennessee	167	2	169
Alabama	92	7	99
Mississippi	122	1	123
Totals	466	14	480
West South Central			
Arkansas	78	0	78
Louisiana	233	0	233
Oklahoma	94	0	94
Texas	346	0	346
Totals	751	0	751
Mountain			
Montana	4	0	4
Idaho	3	1	4
Wyoming	1	0	1
Colorado	84	7	91
New Mexico	5	4	9
Arizona	11	1	12
Utah	20	6	26
Nevada	0	0	0
Totals	128	19	147
Pacific			
Washington	69	17	86
Oregon	39	8	47
California	113	134	247
Totals	221	159	380
Territories and Possessions			
Alaska	1	0	1
Canal Zone	0	2	2
Guam	0	2	2
Hawaii	7	7	14
Puerto Rico	76	9	85
Totals	84	20	104
Grand Total	5,872	1,583	7,455

the main they represent five schools more recently in operation. At present there is no medical school in complete operation within the United States that is not approved by the Council on Medical Education and Hospitals.

There were 208 graduates of unapproved medical schools registered in the five-year period 1953-1957, 73 by examination and 135 by endorsement of credentials. In 1957 there were 9 licensed in 3 states by examination and 28 licensed in 12 states by reciprocity or endorsement of credentials. California, Florida, New York, and Texas licensed the greatest number of graduates of unapproved medical schools during this five-year period. In the remainder of the states shown there were fewer than 10 registered.

Graduates of Schools of Osteopathy Registered by Medical Examining Boards, 1953-1957

The number of graduates of schools of osteopathy granted the privilege of practicing medicine or surgery or both by 18 medical examining boards for five years (1953-1957) is given in table 16. There have been 1,430 such persons registered, 1,031 by examination and 399 without written examination. In 1957 there were 364 so registered, 284 by examination in 11 states, and 80 by reciprocity in 9 states. The new Healing Arts Act in Kansas provides for the licensure of osteopaths, and 144 were so registered in 1957. Following is a summary of the actions and regulations of the 18 boards providing for the licensing of osteopaths by the medical examining board.

TABLE 12.—*Licentiates Representing Additions to the Medical Profession, 1935-1957*

Year	Examination	Reciprocity and Endorsement	Total
1935	5,099	411	5,510
1936	5,548	629	6,177
1937	5,812	612	6,424
1938	5,759	501	6,260
1939	5,584	460	6,044
1940	5,432	455	5,887
1941	5,241	474	5,715
1942	5,560	454	6,014
1943	5,586	372	5,958
1944	6,495	470	6,695
1945	4,979	769	5,748
1946	5,362	1,608	6,970
1947	5,273	1,617	6,890
1948	4,942	1,094	6,036
1949	4,260	1,616	5,876
1950	4,609	1,393	6,002
1951	4,985	1,288	6,273
1952	5,168	1,717	6,885
1953	5,388	1,888	7,276
1954	5,897	2,020	7,917
1955	6,211	1,526	7,737
1956	6,035	1,428	7,463
1957	5,872	1,583	7,455
Totals	125,097	24,985	150,082

In Colorado an osteopath receives a license to practice medicine and must meet the same requirements as for doctors of medicine. In Connecticut an osteopath registered by the osteopathic board may be licensed to practice medicine and surgery or both after examination by the medical examining board. Osteopaths in Delaware may be licensed as osteopathic physicians after successfully passing the examination of the medical board except that the principles of osteopathy is given in the examination in place of materia medica. The District of Columbia will permit any person engaged in the practice of osteopathy on or before Jan. 1, 1948, to file application for a license to practice osteopathy and surgery. To obtain such a license, osteopaths must pass all subjects of the medical examination and in addition must pass subjects in the practice of osteopathy.

TABLE 13.—*Registration of Physicians, 1904-1957*

Year	Examined	Passed	% Failed	Reciprocity or Endorsement	Total Registered
1904	7,056	5,693	19.3	1,005	6,698
1905	7,178	5,688	20.8	394	6,082
1906	8,040	6,373	20.7	1,502	7,875
1907	7,279	5,731	21.3	1,427	7,158
1908	7,775	6,089	21.7	1,284	7,373
1909	7,295	5,865	19.6	1,381	7,246
1910	7,011	5,719	18.4	1,640	7,359
1911	6,964	5,582	19.8	1,243	6,825
1912	6,880	5,467	20.5	1,273	6,740
1913	6,453	5,253	18.6	1,292	6,545
1914	5,579	4,379	21.5	1,439	5,818
1915	5,334	4,507	15.5	1,399	5,906
1916	4,878	4,151	14.9	1,353	5,504
1917	4,754	4,085	14.0	1,360	5,445
1918	3,667	3,184	13.2	1,047	4,231
1919	4,750	4,074	14.2	2,546	6,620
1920	4,796	4,062	15.3	2,558	6,620
1921	4,825	4,228	12.4	2,186	6,414
1922	4,031	3,539	12.2	2,073	5,612
1923	4,727	4,028	14.8	2,405	6,433
1924	5,392	4,756	11.8	1,923	6,679
1925	6,002	5,450	9.2	1,861	7,311
1926	5,770	5,314	7.9	1,955	7,269
1927	5,389	5,002	7.2	2,176	7,178
1928	5,458	5,090	6.7	2,228	7,318
1929	5,629	5,282	6.2	2,420	7,702
1930	5,571	5,255	5.7	2,366	7,621
1931	5,611	5,263	6.2	2,211	7,476
1932	5,675	5,247	7.6	1,886	7,133
1933	5,673	5,244	7.6	1,989	7,233
1934	6,145	5,628	8.4	2,161	7,789
1935	6,443	5,859	9.1	2,194	8,053
1936	6,918	6,224	10.0	2,773	8,997
1937	7,334	6,604	10.0	3,205	9,809
1938	7,461	6,589	11.7	2,956	9,545
1939	7,754	6,493	16.3	2,872	9,365
1940	7,976	6,291	20.7	2,866	9,157
1941	7,539	6,057	19.7	2,762	8,819
1942	7,223	6,120	15.4	2,469	8,589
1943	8,403	7,489	10.9	2,340	9,829
1944	6,817	6,011	11.8	2,596	8,607
1945	5,980	5,343	9.9	3,622	8,965
1946	7,610	6,856	9.9	9,669	16,525
1947	7,164	6,414	10.5	7,701	14,115
1948	6,624	5,904	10.8	7,595	13,499
1949	5,963	5,219	12.5	6,929	12,148
1950	6,203	5,481	11.6	6,755	12,236
1951	6,473	5,716	11.7	6,225	11,941
1952	7,028	6,229	11.3	7,016	13,245
1953	7,425	6,543	13.0	7,809	14,412
1954	8,066	7,033	12.7	8,302	15,235
1955	8,501	7,400	12.9	7,461	15,962
1956	8,342	7,179	13.9	7,421	14,600
1957	9,116	7,769	14.8	7,486	15,255

Since 1952, in Illinois, graduates of the Chicago College of Osteopathy are examined by the medical board and may receive medical licenses. In Indiana, under an amendment to the medical practice act in 1945, osteopaths are permitted to practice medicine, surgery, and obstetrics and to administer anesthetics, antiseptics, and narcotics. Persons who were licensed in osteopathy before 1945 may obtain from the medical board a license to practice osteopathy, surgery, and obstetrics. Special examination and licensure is provided by the Healing Arts Act passed in Kansas in 1957 for doctors of osteopathy

TABLE 14.—*Graduates of Approved Schools and Others Registered, 1922-1957*

	Graduates of Approved Schools		Others		
Year	No.	Percentage of Total	No.	Percentage of Total	Totals
1922	4,519	80.5	1,093	19.5	5,612
1923	5,196	80.8	1,237	19.2	6,433
1924	5,687	85.1	992	14.9	6,679
1925	6,314	86.4	997	13.6	7,311
1926	6,441	88.7	828	11.3	7,269
1927	6,410	89.4	768	10.6	7,178
1928	6,585	90.1	733	9.9	7,318
1929	7,003	91.0	699	9.0	7,702
1930	7,011	92.1	610	7.9	7,621
1931	6,932	92.8	544	7.2	7,476
1932	6,676	92.1	457	6.3	7,133
1933	6,774	93.7	459	6.3	7,233
1934	7,172	92.1	617	7.9	7,789
1935	7,360	91.3	693	8.5	8,053
1936	7,934	88.1	1,063	11.8	8,997
1937	8,391	85.5	1,418	14.4	9,809
1938	8,315	87.1	1,230	12.9	9,545
1939	8,067	86.2	1,298	13.8	9,365
1940	7,781	85.0	1,376	15.0	9,157
1941	7,770	87.9	1,049	11.9	8,819
1942	7,290	84.9	1,299	15.1	8,589
1943	8,640	87.9	1,189	12.2	9,829
1944	7,737	89.8	870	10.1	8,607
1945	8,233	91.8	732	8.1	8,965
1946	15,692	94.9	835	5.1	16,527
1947	13,097	93.0	1,018	7.0	14,115
1948	12,791	94.8	708	5.2	13,499
1949	11,378	93.7	770	6.3	12,148
1950	11,502	94.0	734	6.0	12,236
1951	11,027	92.3	914	7.7	11,941
1952	12,198	92.1	1,047	7.9	13,245
1953	13,189	91.5	1,223	8.5	14,412
1954	13,814	90.7	1,421	9.3	15,235
1955	13,344	89.8	1,517	10.2	14,861
1956	13,146	90.0	1,454	10.0	14,600
1957	13,330	87.4	1,925	12.1	15,255
Totals	324,746	90.1	35,817	9.9	360,563

actively engaged in practice in the state on Jan. 1, 1957, if application is made prior to July 1, 1960. An osteopathic physician having graduated from an approved college of osteopathy after June 1, 1950, and who holds a valid license to practice osteopathy may obtain licensure under the new healing arts act.

In Massachusetts, for the purposes of registration, the D.O. degree is considered equivalent to the M.D. degree. In New Hampshire, under the provisions of the medical practice act, osteopaths are granted the right to practice medicine and surgery. The New Jersey medical practice act provides that an osteopath licensed prior to Nov. 1, 1941, who has served for a period of two years as an intern or resident surgeon in an approved osteopathic or medical hospital, or has completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board, or has had at least three years of practice in a hospital approved by the board, can be admitted to an examination in pharmacology, therapeutics, and surgery. If successful, he can obtain a license to practice medicine and surgery.

In New York, a law approved April 10, 1946, provides that any osteopathic licentiate who had obtained the additional right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics, and biological products, or any applicant who had met or would meet all the preliminary and professional requirements as of Sept. 1, 1936, and has satisfactorily passed or would pass the regular licensing examination would be granted the right to practice medicine without limitation.

The Ohio Medical Practice Act was amended in 1943 to provide that all graduates from osteopathic schools applying for the right to practice in the state must meet certain educational requirements and must pass certain examinations. One of the required examinations is in surgery. Those who qualify and pass all of the examination are then given a license to practice osteopathic medicine and surgery. Those in practice and licensed under a more limited law in effect prior to 1943 can secure a license to practice osteopathic medicine and surgery by meeting certain additional requirements, including postgraduate work and the passing of several additional examinations.

In Oregon, osteopaths who meet certain requirements are granted the right to practice in the subjects covered by the medical examination. In South Dakota, osteopaths may be licensed to practice medicine, surgery, and obstetrics. This is an unrestricted license. Texas issues only one license, which is unrestricted in scope. In Virginia, osteopaths may obtain the right to use drugs and to perform surgery with instruments. An osteopath must be examined in the same subjects as the doctor of medicine except, instead of being examined on the practice of medicine, osteopaths are examined on the practice of osteopathy, by the osteopathic member of the board.

The Wisconsin law, amended in 1950, provides that an osteopath licensed in the state may obtain a license to practice medicine and surgery by completing a refresher course in materia medica and pharmacology consisting of not less than 64 hours of lecture and 60 hours of laboratory work and by passing an examination in these subjects. Osteopaths not licensed in the state may apply to take the same examination as physicians. If successful, they

will be granted licenses to practice medicine and surgery. In Wyoming, the statutes contain no specific provision for the licensing of osteopaths. The medical practice act provides that the certificate issued to all applicants shall be deemed a license to practice medicine in all branches in which the applicant has taken an examination.

that a broader background education may be obtained. In its "Function and Structure of a Modern Medical School" published jointly by the Council and the Association of American Medical Colleges, provision is made for the unusually intelligent and mature student who may be admitted to medical school under exceptional conditions after two years

TABLE 15.—*Graduates of Unapproved Medical Schools Registered 1953-1957*

	Examination						Reciprocity and Endorsement						Combined Total
	1953	1954	1955	1956	1957	Total	1953	1954	1955	1956	1957	Total	
Arizona	..	..	..	..	..	..	..	1	..	..	1	2	2
Arkansas	..	..	..	..	..	..	..	..	..	..	2	2	2
California	..	..	..	..	..	..	8	19	15	2	5	49	49
Delaware	..	..	..	..	..	..	..	..	1	..	1	2	2
District of Columbia	..	..	..	..	..	..	..	..	..	1	1	2	2
Florida	5	8	7	4	5	29	..	..	..	..	..	..	29
Georgia	1	2	..	..	..	3	1	..	..	..	..	1	4
Idaho	..	..	..	..	..	..	1	..	..	..	1	2	2
Illinois	..	..	..	..	..	..	..	2	4	..	..	6	6
Iowa	..	..	..	..	..	..	..	1	1	..	..	2	2
Maine	..	..	1	..	..	1	..	..	1	..	..	1	2
Massachusetts	2	5	1	..	..	8	..	..	..	..	..	..	8
Michigan	..	..	..	..	..	..	..	1	..	1	1	2	3
Missouri	..	..	..	..	..	..	2	1	..	1	1	5	5
New Hampshire	..	..	..	..	..	..	..	..	..	1	..	1	1
New Jersey	3	1	..	..	..	4	..	..	..	4	1	5	9
New York	3	3	1	5	2	14	..	..	..	1	..	1	15
Ohio	..	..	3	..	..	3	1	3	..	..	..	4	7
Pennsylvania	..	..	..	..	..	..	1	..	1	..	..	2	2
South Carolina	..	..	..	..	2	2	..	..	..	..	..	..	2
South Dakota	..	..	1	..	..	1	..	..	..	..	..	..	1
Tennessee	..	..	..	..	..	..	1	..	..	..	..	1	1
Texas	..	..	..	..	..	..	9	7	3	8	11	38	38
Virginia	2	..	..	..	..	2	..	..	..	..	..	..	2
Washington	..	..	..	..	..	..	..	..	..	..	1	1	1
West Virginia	3	..	..	..	..	3	..	..	..	..	..	..	3
Wisconsin	..	..	..	..	..	..	..	..	1	1	2	4	4
Territories and Possessions	1	2	..	..	..	3	..	1	..	..	..	1	4
Totals	20	21	14	9	9	73	24	36	27	20	28	135	208

TABLE 16.—*Graduates of Schools of Osteopathy Registered by Medical Boards, 1953-1957*

	Examination						Reciprocity and Endorsement						Combined Total
	1953	1954	1955	1956	1957	Total	1953	1954	1955	1956	1957	Total	
Colorado	8	3	7	1	5	24	15	22	16	12	9	74	98
Connecticut	2	3	..	..	..	5	..	..	..	..	..	..	5
Delaware	1	..	2	3	1	7	4	1	2	..	1	8	15
District of Columbia	..	..	..	..	..	..	..	1	1	..	..	2	2
Illinois	..	..	14	10	2	26	..	..	..	11	..	11	37
Indiana	5	2	6	2	5	20	10	11	9	..	9	39	59
Kansas	..	..	..	..	144	144	..	..	..	..	..	..	144
Massachusetts	..	1	..	..	..	1	1	2	5	4	4	16	17
New Hampshire	..	..	..	..	1	1	3	1	3	1	2	10	11
New Jersey	11	7	8	6	9	41	10	18	7	28	10	73	114
New York	47	44	92	42	44	269	4	1	1	4	..	10	279
Ohio	64	81	73	63	66	347	20	13	2	13	10	58	405
Oregon	..	..	..	..	..	..	1	..	..	2	..	3	3
South Dakota	..	1	..	..	..	1	..	..	..	..	..	..	1
Texas	32	46	25	9	3	115	16	18	10	18	32	84	199
Virginia	..	..	..	..	..	..	1	1	..	..	..	2	2
Wisconsin	7	7	6	6	4	30	..	1	1	3	3	8	38
Wyoming	..	..	..	..	..	..	..	..	1	..	..	1	1
Totals	177	195	233	142	284	1,031	85	85	58	91	80	399	1,430

Preprofessional Requirements of Licensing Boards

Since January, 1953, the minimum requirement for admission to an approved medical school has been three years of college preparatory study. The Council on Medical Education and Hospitals in accepting this minimum recommends for most students a full four-year college course in order of college work. Statements regarding actual minimal preprofessional collegiate requirements for admission to each approved medical school are presented in the brochure on "Admission Requirements of American Medical Colleges, 1957-1958" prepared by the Association of American Medical Colleges.

The preprofessional requirements of medical licensing boards are indicated in table 17. Seven boards specify that no preprofessional requirement is mentioned in the medical practice act. Ten boards reported a three-year requirement. In others, the law specifies at least two years of college work. No board specifies in detail the number of hours that must be devoted to the subjects of the premedical curriculum although seven boards report that the training must include certain subjects, such as English, physics, chemistry, biology, and a foreign language. The candidates appearing for medical licensure are graduates of all years, and the seeming lack of conformity with accepted standards as promulgated by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges

TABLE 17.—*Requirements of Preprofessional Training by Medical Licensing Boards*

Two Years or More of College		
Alabama[1]	Massachusetts[7]	Rhode Island
Arizona[2]	Michigan[8]	South Carolina[6]
Arkansas	Minnesota	South Dakota[6]
California[3]	Mississippi	Tennessee
Colorado[1]	Missouri	Texas
Connecticut[4]	Montana	Utah[6]
Delaware[5]	Nebraska	Vermont[6]
Florida[6]	Nevada[1]	Virginia
Georgia	New Hampshire	Washington[7]
Idaho	New Jersey[5]	West Virginia
Illinois	New Mexico[1]	Wisconsin[6]
Indiana[7]	New York[3]	Wyoming[1]
Iowa[1]	North Carolina[6]	Alaska[5]
Kansas	North Dakota	Canal Zone
Kentucky	Ohio	Guam
Louisiana[6]	Oklahoma[1]	Hawaii
Maine	Oregon	Puerto Rico
Maryland[6]	Pennsylvania[6]	Virgin Islands[6]

1. Not specified by law.
2. Entrance requirement prescribed by accrediting agencies.
3. Three years for applicants matriculating after Jan. 1, 1954.
4. One year prior to 1919, two years subsequent to 1947 including courses in physics, chemistry, and biology.
5. Premedical training must include courses in physics, chemistry, biology, English, and a foreign language.
6. Three-year college requirement.
7. For all applicants courses in physics, chemistry, and biology must be included in premedical training.
8. Premedical training must include courses in English, physics, chemistry, and biology.

is due to the fact initiation of the three-year requirement for all candidates appearing for licensure would eliminate the graduates of earlier years. In practice, the boards granting licensure to a graduate of an approved medical school accept the premedical training required in the year the candidate was admitted to medical school.

Professional Educational Requirements of Licensing Boards

Recently there has been a tendency to increase the length of the academic year in medicine. Currently, the minimum medical school academic year is of 32 weeks' duration, and the medical degree is conferred after four such years or 128 weeks of medical school study. The state examining boards were queried as to whether the medical practice act makes it possible to accept for licensure examination graduates of approved medical schools who have compressed the same 128 weeks of medical school study into less than four calendar years. Forty-seven of the 55 licensing boards replied to this question. Thirty answered in the affirmative and 17 in the negative.

TABLE 18.—*Medical Licensing Boards Requiring One-Year Internship*

Alabama	Michigan[1]	Utah
Arizona	Missouri[2]	Vermont[1]
California	Montana	Washington[1]
Colorado	Nevada	West Virginia
Delaware[1]	New Hampshire	Wisconsin
District of Columbia	New Jersey[2]	Wyoming[1]
Idaho	North Dakota	Alaska[4]
Illinois[1]	Oklahoma	Canal Zone
Iowa	Oregon	Guam
Kansas	Pennsylvania[1, 4]	Hawaii
Kentucky	Rhode Island[1]	Puerto Rico[1]
Louisiana[1]	South Carolina	Virgin Islands[1]
Maine	South Dakota	

1. Internship must be a rotating service.
2. For reciprocity applicants.
3. One year rotating service or two years of straight internship or two-year residency in a specialty.
4. Internship may be a straight service for applicants after seven years from date of graduation from medical school.

Along with this question, the licensing boards were asked, if the answer to the above question was in the negative, if it was possible to obtain an interpretation of the medical practice act that would allow the board to accept for licensure examination a graduate of an approved medical school who had 128 weeks of medical school study in less than four calendar years. Of the 17 boards that replied no to the first question, 7 indicated it would be possible to obtain an interpretation of the medical practice act to accept graduates who had compressed their medical education in less than four calendar years, 8 replied that it would not be possible, 1 board was doubtful, and 1 board made no reply to the second question.

TABLE 19.—*Licensure, Registration, or Other Requirements for Interns*

Licensure	Other Requirements
Indiana	Colorado[6]
Puerto Rico	Florida[1]
	Massachusetts[3]
	New Jersey[7]
	South Carolina[5]
	Texas[2]
	Virginia[4]
	West Virginia[4]

1. Must register every six months with State Board of Health, and may serve for a period of three years without licensure.
2. Must register with Board annually.
3. Limited registration granted.
4. Graduates of unapproved foreign medical schools must obtain permission from Board.
5. Temporary permit required.
6. May serve for an aggregate period not to exceed four years; required to register with licensing board annually.
7. May serve for two years without licensure.

Approval of Medical Schools

Seven licensing boards maintain their own list of approved medical schools in the United States. Twenty-six boards require applicants for licensure from approved medical schools in the United States or Canada to be graduates of medical schools approved by the Council on Medical Education and

Hospitals. Two boards require membership in the Association of American Medical Colleges. Twenty boards specify that schools must be approved by the Council and be in membership in the Association of American Medical Colleges. In sixteen instances the requirement is specified in the medical practice act, 37 boards reported that it is a formal regulation, and two indicated that it was an informal policy. In actuality, all approved medical schools are both approved by the Council and in membership in the Association of American Medical Colleges.

TABLE 20.—*Licensure, Registration, or Other Requirements for Residents*

Licensure or Temporary Registration Required	Other Requirements
Arkansas	Colorado[9]
California[1]	Delaware[15]
Connecticut[2]	District of Columbia[13]
Idaho	Florida[10]
Illinois[3]	Mississippi[1]
Indiana	New Jersey[12]
Iowa[11]	Virginia[12]
Maine[4]	West Virginia[13]
Massachusetts[5]	
Michigan[14]	
Minnesota[6]	
Nevada[4]	
New York[7]	
North Carolina[6]	
Oklahoma[4]	
Pennsylvania[8]	
South Carolina[14]	
South Dakota	
Texas	
Wisconsin	
Puerto Rico	

1. May serve one year without licensure.
2. May be required by hospitals.
3. Applicants who wish to serve residencies in Illinois hospitals and who are not eligible for permanent registration may apply for temporary certificates which are issued without examination.
4. Temporary license for one year.
5. Limited registration granted.
6. Limited license for duration of residency.
7. Temporary certificate for residents, except in state mental and municipal hospitals.
8. Postgraduate certificate issued for residency training if licensed in any state or territory of the United States or Canada or hold the certificate of the National Board of Medical Examiners.
9. May serve for an aggregate period not to exceed four years; required to register with licensing board annually.
10. Three years without licensure. Must register every six months with board of health.
11. Resident physician's licenses are issued for a period of not more than seven years for service in a hospital approved by the board.
12. Graduates of unapproved foreign medical schools must obtain permission from board.
13. May serve two years without licensure.
14. Temporary license for residency and postgraduate training.
15. Registration with licensing board required.

Internship as a Prerequisite for Licensure

There is currently no medical school in the United States which requires that the student serve an internship as a prerequisite to graduation. Duke University School of Medicine specifies the internship requirement but does not withhold the degree until the internship is completed. The degree is issued at the end of the four-year medical course, but the school obtains from each student a signed agreement that he will spend two years in training in a hospital or laboratory before entering practice.

One year of internship, as a requirement for licensure, is required by the licensing boards of 31 states, the District of Columbia, Alaska, the Canal Zone, Guam, Hawaii, Puerto Rico, and the Virgin Islands. Kansas, Louisiana, Missouri (for reciprocity applicants), Montana, and Guam reported the institution of this requirement in the past year.

TABLE 21.—*Temporary and Educational Permits, Limited and Temporary Licenses, or Other Certificates Issued by State Licensing Boards*

Arizona	Temporary permits issued on basis of community emergency and subject to qualifying for regular license. A regular license limited to full-time practice in federal and state hospitals or institutions or governmental public health departments.
Arkansas	Temporary permits are granted reciprocity applicants until regular board meeting.
Delaware	Temporary emergency license upon proved emergency, one year, subject to renewal, and for locum tenens practice.
Georgia	Permit until board meets. Permits for practice in state institutions and for medical school faculty members.
Idaho	To candidates holding certificate of National Board of Medical Examiners or licensed by written examination in another state until next meeting of board.
Illinois	Temporary certificates for residency training for applicants who are not qualified for permanent registration. Permit issued for service in state hospitals to physicians eligible for licensure.
Indiana	Temporary license pending next examination for graduates of approved medical schools. Temporary reciprocal license for six months.
Iowa	Resident physicians licenses are issued for a period of not more than seven years for service in a hospital approved by the board.
Kansas	Temporary permit until next board meeting.
Kentucky	Temporary permits issued to applicants by endorsement and serve until investigations completed and meeting of board. Limited licenses are for special place, purpose, and time.
Louisiana	Temporary permit is granted to physicians possessing the necessary credentials who file application for examination or reciprocity and who locate in Louisiana between the regular semiannual examination meetings of the board. Temporary permit valid until next meeting of the board.
Maine	Temporary licenses granted for residency training for one year. Must be an American citizen and a graduate of an approved medical school.
Massachusetts	Limited registration covering appointment as intern, resident, or fellow in a specific hospital.
Michigan	Temporary license for residency and postgraduate training program.
Minnesota	Temporary certificate for postgraduate work in hospitals.
Mississippi	Temporary permit for practice until next board meeting.
Nevada	Temporary permit for one year for residency training.
New Hampshire	Temporary license for five years to foreign physicians. Permanent license issued upon becoming citizen of the United States.
New Jersey	Temporary license for noncitizens. Permanent license in six years; may be extended in additional two years.
New Mexico	Limited for service in a state institution or in a hospital maintained by industry for the exclusive use of its employees.
New York	Temporary certificate for residency training except in state, mental, and municipal hospitals.
North Carolina	Limited license issued for duration of residency.
North Dakota	Temporary permit for United States and Canadian graduates until next board examination.
Oklahoma	Temporary licenses for residency training in approved hospitals.
Pennsylvania	Postgraduate certificate issued for residency training if licensed in any state or territory of the United States or Canada or hold the certificate of the National Board of Medical Examiners.
Rhode Island	Temporary permit for service in state institutions under supervision.
South Carolina	Temporary permits for interns and residents.
South Dakota	Temporary license issued for graduates of foreign medical schools for four years for practice in emergency medical areas.
Texas	Temporary permit issued until next board meeting.
Virginia	Temporary permit issued until next board meeting.
West Virginia	Temporary permit issued until next board meeting to qualified applicants.
Wisconsin	Temporary educational permit for graduates of foreign medical schools not recognized by board for licensure.
Alaska	Temporary permits issued while processing permanent licensure, to summer cannery physicians, and to physicians in the armed forces on short periods with private physicians and for locum tenens work.
Guam	Restrictive certificate to permit medical employees of federal contractors to practice in the discharge of their official duties.
Puerto Rico	Special permit may be granted.
Virgin Islands	Temporary certificates issued to military service personnel on duty and to municipal personnel until next license examination.

Eleven boards specify that the internship must be a rotating service. New Jersey reported that a one-year general rotating internship or a two-year residency in a specialty will meet the board's requirement. While Pennsylvania requires a rotating internship, it will accept an internship completed on a straight service for applicants after seven years from date of graduation from medical school. Those licensing boards that require an internship for licensure are listed in table 18.

TABLE 22.—*Citizenship Requirements for Licensure*

No Requirement		
California	Utah	Guam
District of Columbia	Washington	Virgin Islands
Indiana	Canal Zone	
Declaration of Intention		
Arizona	Massachusetts	South Dakota
Connecticut	New Mexico	Texas
Illinois	New York	Virginia
Iowa	Pennsylvania	Wisconsin
Maryland	Rhode Island	Hawaii
Full Citizenship		
Alabama	Michigan	Ohio
Arkansas	Minnesota	Oklahoma
Colorado	Mississippi	Oregon
Delaware	Missouri	South Carolina
Florida	Montana	Tennessee
Georgia	Nebraska	Vermont
Idaho	Nevada	West Virginia
Kansas	New Hampshire	Wyoming
Kentucky	New Jersey	Alaska
Louisiana	North Carolina	Puerto Rico
Maine	North Dakota	

Licensure, Registration, or Other Requirements for Interns and Residents Serving in Hospitals

In the majority of states, physicians serving internships are not required to be licensed in the state in which the hospital where they are interning is located. Indiana and Peurto Rico have this requirement. The states which require some form of registration with the licensing board or a stipulation that the physician must be eligible for licensure are listed in table 19.

Twenty-nine boards require that physicians serving as residents in hospitals must be licensed or stipulate registration in the state. Seven boards indicate that registration must be in the form of a regular license. Other boards do not require full licensure of residents but issue certificates limited in nature, which may be called a limited license, a resident's license, temporary permit, or temporary license. In a few instances a residency may be served for a specified period without licensure. The regulations of each of the licensing boards that exact some requirement of those engaged in residency training are given in table 20.

Temporary and Educational Permits, Limited and Temporary Licenses, or Other Certificates Issued by State Licensing Boards

Thirty-six boards provide for the issuance of temporary and educational permits, limited and temporary licenses, or other certificates for the practice of medicine. The terms for the issuance of such certificates vary. This limited registration may apply to hospital training, to those ineligible for licensure who seek further educational training, or for regular practice until the next regular session of the licensing board. A list of these states and information on the length of validity of this special registration are shown in table 21.

Citizenship Requirements for Licensure

The requirements pertaining to United States citizenship exacted by the various medical licensing boards are tabulated in table 22. Eight boards have no requiremnt for citizenship, 15 boards require the applicant for licensure to have declared his intention of becoming a United States citizen, and 32 boards require the applicant for licensure to be a full citizen. Nevada, New Hampshire, and North Dakota reported that the requirement is waived for

TABLE 23.—*Schedule of Written Examination Dates and Issuance of Licenses by Reciprocity or Endorsement of Credentials*

	Written Examinations	Licenses by Reciprocity or Endorsement Issued
Alabama	Annually	Continuously
Arizona	Quarterly	Quarterly
Arkansas	June and November	June and November
California	Quarterly	Continuously
Colorado	Twice annually	Quarterly
Connecticut	March, July, and November	Continuously
Delaware	Semiannually	Semiannually
District of Columbia	Twice annually	Quarterly
Florida	Twice annually	No reciprocity
Georgia	June and October	June and October
Idaho	Twice annually	Twice annually
Illinois	Quarterly	Quarterly
Indiana	Annually, June	Approximately eight times annually
Iowa	Twice annually	Monthly
Kansas	Twice annually	Twice annually
Kentucky	Semiannually	Every two months
Louisiana	June and December	June and December
Maine	March, July, and November	March, July, and November
Maryland	Twice annually	Monthly
Massachusetts	January and July	Once a month, except August
Michigan	June and October	Continuously
Minnesota	Quarterly	Quarterly
Mississippi	Annually in June	June and December
Missouri	Three times annually	Six times annually
Montana	Semiannually	Semiannually
Nebraska	Annually	Continuously
Nevada	Quarterly	Quarterly
New Hampshire	Twice annually	Twice annually
New Jersey	June and October	Monthly except August
New Mexico	Twice annually	Twice annually
New York	June and December	Continuously
North Carolina	Annually	Five times annually
North Dakota	January and July	January and July
Ohio	June and December	January, April, July, and October
Oklahoma	Annually	Quarterly
Oregon	January and July	Quarterly
Pennsylvania	January and July	Monthly, except February and August
Rhode Island	Quarterly	Four times annually
South Carolina	Twice annually	Three times annually
South Dakota	Twice annually	Continuously
Tennessee	Quarterly	Continuously
Texas	Twice annually	Quarterly
Utah	Once annually	February, June, August, and November
Vermont	Twice annually	Continuously
Virginia	Twice annually	Twice annually
Washington	Twice annually	Twice annually
West Virginia	January and July	Quarterly
Wisconsin	January and July	Quarterly
Wyoming	Three times annually	Three times annually
Alaska	On application	On application
Canal Zone	On application	On application
Guam	On application	On application
Hawaii	January and July	Continuously
Puerto Rico	Twice annually	Continuously
Virgin Islands	Twice annually	Twice annually

citizens of Canada, while Oklahoma requires full citizenship for candidates applying for licensure by examination.

Schedule of Written Examination Dates and Reciprocity Meetings

The schedule of dates for written examination and meetings or oral examination for the issuance of licenses by reciprocity or by endorsement of credentials is given in table 23. In most instances written examinations are scheduled twice annually and reciprocity meetings quarterly or as soon as the application for licensure can be processed. In those states requiring a basic science certificate for licensure, dates of the examination or reciprocity meetings are arranged to coincide closely with the examination and meeting dates of the boards of examiners in the basic sciences. A few states issue temporary permits enabling physicians to begin the practice of medicine until the board examination or meeting is held.

TABLE 24.—*Medical Licensure Fees*

	Examination	Reciprocity or Endorsement
Alabama	$ 50	$ 50
Arizona	25	100
Arkansas	50	100
California	25	100
Colorado	25	50
Connecticut	35	75[a]
Delaware	25	100
District of Columbia	25	50[b]
Florida	50	...
Georgia	20	50
Idaho	25	100
Illinois	75	200
Indiana	25	100
Iowa	25	50
Kansas	50	50
Kentucky	50	75
Louisiana	25	15
Maine	27	52
Maryland	35	50
Massachusetts	25	50
Michigan	50	100
Minnesota	25	100
Mississippi	10	50
Missouri	25	100
Montana	50	75
Nebraska	25	50
Nevada	100	200
New Hampshire	30	50
New Jersey	50	100
New Mexico	50	50
New York	40	40
North Carolina	50	100
North Dakota	50	50
Ohio	25	50
Oklahoma	25	100
Oregon	25	100
Pennsylvania	25	100
Rhode Island	20	20
South Carolina	25	100
South Dakota	20	50
Tennessee	35	50[c]
Texas	50	100
Utah	25	50
Vermont	20	50
Virginia	25	100
Washington	25	25
West Virginia	25	100
Wisconsin	50	100
Wyoming	50	50
Alaska	35	110
Canal Zone	10	5
Guam	50	50
Hawaii	25	25
Puerto Rico	30	30
Virgin Islands	65	...

a. Endorsement of certificate of National Board of Medical Examiners, $35.
b. Endorsement of certificate of National Board of Medical Examiners, $25.
c. Endorsement of certificate of National Board of Medical Examiners, $10.

Medical License Fees

The fee charged by the medical licensing boards for registration by examination and also by reciprocity or endorsement of credentials is given in table 24. The examination fee is somewhat uniform throughout the country, the majority of the boards charging a fee of $25. The fee for a license by reciprocity or endorsement of credentials varies from $20 to $200. Six boards reported an increase in the fee charged for the written examination and four boards an increase in the fee charged for a license without written examination. Three boards—Connecticut, the District of Columbia, and Tennessee—have a lower fee for those being certified on the basis of the certificate of the National Board of Medical Examiners than for candidates licensed by endorsement of state licenses.

Licensure on Government Credentials

In most of the states no provision is made in the medical practice act for the acceptance of government credentials as a basis for licensure without examination. Eleven state licensing boards have indicated that in their discretion they may accept such credentials under varying regulations, but mainly the recognition is accorded to officers who obtained their commissions after examination. These states are Alabama, California, Delaware, Illinois, Maine, North Dakota, Pennsylvania, Texas, Utah, Vermont, and Wisconsin.

Annual Registration

Thirty-six states, the District of Columbia, Alaska, Guam, Hawaii, and the Virgin Islands require physicians to register their licenses annually or biennially. In table 25 are listed the licensing boards that exact this requirement and the fee charged for such registration. Some of these states require such registration whether or not the physician resides in the state. The fee charged ranges from $1 to $10. Six states have a nonresident fee. In Florida physicians are required to register with the State Board of Health, while Illinois, Missouri, New York, North Carolina, and West Virginia require biennial registration. The requirement of annual registration was initiated in North Carolina in 1957, and biennial registration in Illinois was also made a requirement in 1957.

Licensure of Foreign-Trained Physicians

Since February, 1950, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges have published a list of foreign medical schools whose graduates they have recommended for consideration on the same basis as graduates of approved medical schools in the United States and Canada. This has always been offered as an advisory list for the use of State Licensing Boards, Hospitals, Specialty Boards, and other organizations in the United States concerned with the evaluation of medical schools. These same organizations have always been advised that the list was acknowledged to be a tentative one and that the position of the Councils, with respect to the foreign medical schools not listed, has been that they neither approve nor disapprove of them.

TABLE 25.—*States Requiring Annual Registration*

State	Fee	State	Fee
Arizona	$ 5.00	North Carolina	$ 5.00
Arkansas	a	North Dakota	5.00
California	1.00	Oklahoma	5.00
Colorado	b	Oregon	f
Connecticut	2.00	Pennsylvania	1.00
District of Columbia	4.00	Rhode Island	1.00
Florida	1.00c	South Dakota	2.00
Georgia	3.00	Tennessee	5.00
Idaho	10.00	Texas	5.00
Illinois	6.00	Utah	3.00
Indiana	d	Vermont	2.00
Iowa	3.00	Virginia	1.00
Kansas	5.00	Washington	7.00
Louisiana	10.00	West Virginia*	2.00
Minnesota*	3.00	Wisconsin	3.00
Missouri	5.00	Wyoming	2.50
Montana	5.00	Alaska	10.00
Nebraska	3.00	Guam	None
Nevada	10.00	Hawaii	5.00
New Mexico	e	Virgin Islands	50.00
New York*	6.00		

* Biennial registration.
a. Residents $ 2, nonresidents $ 4.
b. Residents $ 2, nonresidents $10.
c. Required by State Board of Health.
d. Residents $ 5, nonresidents $10.
e. Residents $ 2, nonresidents $ 5.
f. Residents $15, nonresidents $ 5.

After more than two years of cooperative study by representatives of the American Hospital Association, the American Medical Association, the Association of American Medical Colleges, and the Federation for State Medical Boards of the United States, a method for evaluating the graduates of foreign medical schools wishing to come to the United States has been devised. These agencies have sponsored the organization of the Educational Council for Foreign Medical Graduates to implement this new program. The details of the program are described elsewhere in this issue by the Executive Director, Dr. Dean F. Smiley.

In February, 1958, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges acted to withdraw the current list of foreign medical schools. The withdrawal of this list is to become effective as of Jan. 1, 1960.

The current requirements for foreign-trained physicians seeking medical licensure in the United States and its territories and outlying possessions are given in table 26. Foreign-trained physicians are not eligible for licensure in 10 states, the Canal Zone, and Puerto Rico. Ten states have added the requirement that the applicant must present the qualifying certificate of the Educational Council for Foreign Medical Graduates or is referred to the Educational Council for a recommendation. The specific requirement is noted under "additional requirements" in the text beneath the table. Eighteen boards limit licensure to those who have graduated from schools in the approved listing. Other boards have found the list useful in the evaluation of credentials, while some boards maintain their own list of schools whose graduates are acceptable for licensure. Eight boards do not require citizenship, 15 require declaration of intention, and 32 boards require full citizenship. Thirty-one boards reported that the foreign-trained physician must serve an internship or obtain further medical training in the United States. In addition to the items tabulated in this table, many of the boards have specific requirements or varying exemptions. The factual data pertaining to these regulations are included in the text immediately below the table.

This chart was developed by the Council on Medical Education and Hospitals of the American Medical Association in an effort to assist the foreign-trained physician seeking licensure in the United States. While an attempt has been made to present the situation as it exists, the table is intended to give only a summary of existing requirements. Persons interested in licensure should supplement these data by communicating with the licensing boards. Medical licensure in the United States is a "state right" and is entirely under the jurisdiction of the governments of the individual states. The power to license physicians is exercised through the medical licensing board of each state. Official supplementary information concerning the acceptability of foreign credentials and subsequent changes in the regulations should be obtained directly from the licensing boards.

The Council also publishes a compendium of information concerning foreign medical schools and the status of foreign medical credentials in the United States that has been prepared as an aid to foreign-trained physicians. In addition to data pertaining to medical licensure, this booklet contains sections pertaining to graduate training in the medical specialties, undergraduate medical study in the United States, advanced standing in American medical schools, and medical study in foreign medical schools.

Table 27 records the number of graduates of foreign faculties of medicine examined for medical licensure by 37 states, Alaska, Hawaii, and Puerto Rico in 1957. The figures include both foreign-born

TABLE 26.—*Status of Requirements for Medical Licensure for Physicians Trained in Foreign Countries Other Than Canada**

	Written Examination Required	Admitted Also on Reciprocal Basis	Citizenship	Basic Science Certificate	Internship in United States	Recognition Limited to Graduates of Schools Accepted by A. M. A. and A.A.M.C.	Additional Requirements	Exemptions	Examination Fee, Dollars
Alabama	x	..	x	..	x	..	E x	..	50
Arizona	x	..	D	x	x	..	E	..	25
Arkansas	Not accepted								
California	x	..	..	..	x	..	x	x	25
Colorado	x	..	x	x	x	x	x	..	25
Connecticut	x	..	D	x	..	..	..	..	35
Delaware	x	..	x	..	x	x	x	..	25
Dist. of Columbia	x	x	..	x	x	..	E	..	25
Florida	x	..	x	x	x	..	E	..	50
Georgia	x	x	x	..	..	x	..	..	30
Idaho	Not accepted								
Illinois	x	..	D	..	x	..	x	..	25
Indiana	x	..	..	..	..	..	x	..	25
Iowa	x	..	D	x	x	x	x	..	25
Kansas	x	x	x	x	x	..	..	x	50
Kentucky	x	..	x	..	x	..	x	..	50
Louisiana	Not accepted								
Maine	x	..	x	..	x	..	..	..	27
Maryland	x	..	D	..	x	..	..	x	35
Massachusetts	x	..	D	..	..	..	x	..	25
Michigan	x	..	x	x	x	..	x	..	50
Minnesota	x	..	x	x	x	x	x	..	25
Mississippi	x	..	x	..	..	x	..	..	10
Missouri	x	..	x	..	x	..	E	..	25
Montana	Not accepted								
Nebraska	x	..	x	x	..	x	..	..	25
Nevada	Not accepted								
New Hampshire	x	x	x	..	x	..	..	x	30
New Jersey	x	x	x	..	x	..	x	x	50
New Mexico	x	..	D	x	..	x	..	..	50
New York	x	..	D	..	..	..	..	..	40
North Carolina	x	..	x	..	..	x	..	..	50
North Dakota	x	..	x	..	x	..	E	..	50
Ohio	x	..	x	..	..	..	..	x	25
Oklahoma	x	..	x	x	x	x	..	..	25
Oregon	Not accepted								
Pennsylvania	x	..	D	..	x	x	..	x	25
Rhode Island	x	x	D	x	x	..	x	x	20
South Carolina	Not accepted								
South Dakota	x	..	D	x	x	..	E	..	20
Tennessee	x	x	x	x	..	x	..	..	35
Texas	x	..	D	x	..	..	x	..	50
Utah	Not accepted								
Vermont	Not accepted								
Virginia	x	..	D	..	x	..	x	x	25
Washington	x	x	..	x	x	x	..	..	25
West Virginia	x	..	x	..	x	..	x	..	25
Wisconsin	x	x	D	x	x	x	x	..	50
Wyoming	Not accepted								
Alaska	x	x	x	x	x	x	..	..	35
Canal Zone	Not accepted								
Guam	x	x	..	..	x	x	..	..	50
Hawaii	x	..	D	..	x	x	..	x	50
Puerto Rico	Not accepted								
Virgin Islands	x	..	..	..	x	x	x	..	65

This summary should be supplemented by direct communication with the secretary of the licensing board of the state in which the physician is interested.

x Implies yes.

D—Declaration of intention to become citizen of United States.

* Graduates of medical schools of Canada considered for licensure on the same basis as graduates of approved medical schools in the United States provided they comply with regulations pertaining to citizenship and internship.

E—Candidate must pass examination of Educational Council for Foreign Medical Graduates, Inc

Additional Requirements

Alabama. Candidate is eligible if he is certified by the National Board of Medical Examiners and approved.

California. Two-year internship in an approved hospital in the United States, one of said years being in California.

Colorado. Credentials must be submitted in original form and accompanied by translation and will be directly verified or documents should bear evidence of being visaed by the U. S. Consul in the country wherein the school of graduation is or was located.

Delaware. Residence for one year required. Completion of senior year in approved medical school in the United States.

Illinois. Limited license for practice in hospitals maintained by the state.

Indiana. Graduation from medical school approved by Indiana board, plus repetition of senior year in approved medical school in United States or two years' postgraduate work in approved hospital in the United States. Postgraduate work must be obtained in states other than Indiana.

Iowa. Requirements include (1) medical diploma, (2) three years of residency training approved by the board, and (3) recommendation of the Educational Council for Foreign Medical Graduates.

Kentucky. Applicant required to complete at least five years' training in the United States in an institution approved by the board and to have successfully passed examination of National Board of Medical Examiners.

Massachusetts. Must furnish documentary evidence that education is equivalent to that of graduates of United States Medical schools and shall be required to take examination of National Board of Medical Examiners who shall certify that the applicant has successfully passed said examination.

North Dakota. Certificate of Educational Council for Foreign Medical Graduates accepted for admission to board examination.

Rhode Island. After Jan. 1, 1956, must present qualifying certificate from Educational Council for Foreign Medical Graduates.

Wisconsin. If education not equivalent to that offered at University of Wisconsin are referred to Educational Council for Foreign Medical Graduates for approval and then to the dean of the medical school.

Exemptions

Illinois. Graduates of European medical colleges or universities Jan. 1, 1943, with the exception of certain approved colleges in the British Isles, Denmark, Holland, Norway, Sweden, and Switzerland, will not be accepted after July 1, 1954. However, graduates of such European medical colleges after Jan. 1, 1943, may be considered providing they present diplomas of graduation from approved medical colleges in the United States after attendance in such colleges for at least one year, and, in addition, have served rotating internship of one year in an approved hospital in Illinois.

Kansas. Applicant must be licensed to practice in country of graduation. Application must be filed one year in advance.

Maryland. Graduates of recommended medical schools may be accepted after completion of one year of internship or residency in an approved hospital in the United States.

Graduates, not on the recommended list, who obtained the medical degree after Jan. 1, 1940, are not eligible; must serve three years in hospitals in United States and submit recommendations from the hospitals.

New Hampshire. Diplomates of National Board of Medical Examiners eligible on reciprocity basis. Temporary license valid until citizenship is completed may be given. Considered on an individual basis.

Michigan. Completion of senior year in approved medical school in the United States or Canada, or M.S. degree in any field allied with medicine from a graduate school affiliated with an approved medical school, or, in lieu of above, certificate of an oral comprehensive examination in the basic sciences and clinical medicine by a joint screening board of examiners, from the faculties of the medical schools of the University of Michigan and Wayne University.

Minnesota. Two-year internship required.

New Jersey. Original certificate covering medical courses, diploma and license in foreign country with translation by Lawyers' and Merchants' Translation Bureau, 11 Broadway, New York City.

Rhode Island. Must pursue postgraduate study or serve additional one year internship or residency. After Jan. 14, 1955, must serve approved rotating internship in Rhode Island. Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located.

South Dakota. Applicant required to practice in an emergency area for four years under a temporary license and reappear before the board for permanent licensure. After July 1, 1955, only those cleared through IRO will be eligible.

Vermont. Must be diplomate of National Board of Medical Examiners.

Virginia. Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located, or must have completed the course of study and passed examinations equivalent to those required for a diploma or license conferring such full right to practice.

New Jersey. Internship completed in foreign countries after July 1, 1934, not acceptable. Acceptance limited to schools recognized by the board. Considered on an individual basis. After Jan. 1, 1955, must have minimum of three years' training in a hospital approved by the board.

Ohio. Graduates of schools of Continental Europe after 1943 are eligible if on accepted list. If not licensed in a foreign country must have one year in hospital in the United States; if not on accepted list, two years of training in an approved hospital in the United States. Considered on an individual basis.

Pennsylvania. Medical schools in China and Japan not accepted.

Rhode Island. Matriculants in foreign medical faculties subsequent to Jan. 1, 1949, not acceptable unless applicant was a legal resident of Rhode Island at the time of matriculation at a foreign medical school and obtained his preprofessional training in the United States or Canada.

Texas. European graduates after 1939 limited to English speaking schools.

Virginia. Two years of internship in approved hospital in the United States or Canada within the past five years prior to application or one year of study in an approved medical school in lieu of one year of the internship.

Hawaii. Diplomates of National Board eligible on reciprocity basis.

West Virginia. Applicant must be resident of the state for three years preceding application and recommended by local society.

Wisconsin. 1953 Legislature established One Year Temporary Educational Permit, which authorizes graduates of unapproved foreign schools to obtain residency training in approved hospitals. May be renewed for two additional years.

Virgin Islands. Residence of six months required.

TABLE 27.—FOREIGN-TRAINED PHYSICIANS EXAMINED FOR

Marginal Number	SCHOOL	1 Alabama	2 Arizona	3 California	4 Colorado	5 Connecticut	6 Delaware	7 District of Columbia	8 Florida	9 Georgia	10 Idaho	11 Illinois	12 Indiana	13 Iowa	14 Kansas	15 Maine	16 Maryland
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F
	ARGENTINA																
1	Univ. Nacional de Buenos Aires, Facultad de Ciencias Medicas	.. ..	.. ..	2 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	2 0
2	Universidad Nacional de Cordoba, Facultad de Ciencias Medicas	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
3	Universidad Nacional del Litoral, Facultad de Ciencias, Rosario	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	AUSTRALIA																
4	University of Melbourne Faculty of Medicine	.. .	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
	AUSTRIA																
5	Karl-Franzens Universitat, Medizinische Fakultat, Graz	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	5 5	.. ..	.. ..	.. ..	.. ..	1 0
6	Leopold Franzens Universitat Medizinische Fakultat, Innsbruck	.. ..	.. ..	2 0	.. ..	1 1	1 0	.. ..	1 0	.. ..	.. ..	0 5	.. ..	.. ..	.. ..	.. ..	0 1
7	Medizinische Fakultat der Universitat Wien	.. ..	.. ..	1 0	.. ..	1 2	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	.. ..	.. ..	1 0
	BELGIUM																
8	Universite Libre de Bruxelles Faculte de Medecine	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	1 0	.. ..	.. ..	.. ..	1 1
9	Universite de Faculte de Medecine	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
10	Universite Catholique de Louvain Faculte de Medecine	.. ..	.. ..	.. ..	.. ..	0 1	.. .	1 0	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	1 0	3 0
11	Universite Gent Faculte de Medecine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	BOLIVIA																
12	Univ. Mayor de San Andres Facultad de Ciencias Med., La Paz	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
13	Facultad de Medecina de la Univ. de San Simon, Cochabanga	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	BRAZIL																
14	Universidade de Rio de Janeiro Faculdad de Medicina	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	.. ..
15	Universidade de Sao Paulo Faculdad de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
16	Faculdade de Medicina e Cirurgia do Para	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
17	Universidade de Minas Faculdade de Medicina, Minas Gerais	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
18	Universidade de Parana Faculdade de Medicina, Curitiba	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	BULGARIA																
19	University of Sofia Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
	CHILE																
20	Universidade de Chile Facultad de Ciencias Medicas, Santiago	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1
	CHINA																
21	University of Hong Kong Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1
22	East China Union Medical College, Nanking	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
23	China Union Medical College, Peiping	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
24	Hsiang Ya Medical College, Changsha	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
25	Pennsylvania Medical School (St. John's University), Shanghai	1 0	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	1 0
26	Cheeloo University School of Medicine, Foochow	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
27	Hackett Medical College for Women, Canton	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
28	Woman's Christian Medical College, Shanghai	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
29	National College of Medicine, Shanghai	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
30	West China Union Uni. School of Med., Shengtu, Szechwan	.. ..	.. ..	2 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	1 0
31	Army Medical College, Peking	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
32	Dr. Sun Yat-sen Medical College, Ling-nan University, Canton	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 2
33	Aurora University French School of Medicine, Shanghai	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
34	Tung Teh Medical School, Shanghai	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1
35	Military Medical College, Shanghai	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1
36	National Central University College of Medicine, Nanking	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
37	Tung Nan Medical College, Shanghai	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
38	National Tung Chi Uni. College of Medicine, Ahgnhai, Kiangsu	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
39	National Kweiyang Medical College, Kweiyang	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
40	National Chung Cheng Medical College, Nan Chang	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	COLOMBIA																
41	Universidad Nacional Facultad de Medicina, Bogota	.. ..	.. ..	0 1	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	1 1
42	Universidad de Cartagena Facultad de Medicina, Cartagena	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
43	Universidad de Antioquia Facultad de Medicina y Ciencias Naturales, Medellin	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
44	Facultad de Medicina de la Pontificia, Universidad Catolica, Javerina, Bogota	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
	CUBA																
45	Universidad de la Habana Facultad de Medicina y Farmacia	.. ..	.. ..	4 1	.. ..	0 1	.. ..	.. ..	8 11	2 0	.. ..	15 39	.. ..	.. ..	1 0	.. ..	6 2
	CZECHOSLOVAKIA																
46	Deutsche Universitat Medizinische Fakultat, Prag	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 3	.. ..	.. ..	.. ..	.. ..	.. ..
47	Universita Karlova Fakulta Lekarska, Praha	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 3	.. ..	.. ..	.. ..	.. ..	0 1
48	Univerzita Komenskeho Fakulta Lekarska, Bratislava	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
49	Masarykova Universita Fakulta Lekarska, Brno	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
	DENMARK																
50	Kobenhavns Universitet Laegevidenskabelige Fakultet	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
	DOMINICAN REPUBLIC																
51	Universidad de Santo Domingo Facultad de Medicina	.. ..	.. ..	0 1	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	4 11	.. ..	.. ..	.. ..	.. ..	1 1
	ECUADOR																
52	Universidad Central Facultad de Ciencias Medicas, Quito	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	1 0	.. ..	.. ..	.. ..	1 1
53	Universidad de Cuenca Facultad de Medicina, Cuenca	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
54	Universidad de Guayaquil Facultad de Medicina, Guayaquil	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	EGYPT																
55	Egyptian University Faculty of Medicine, Cairo	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
56	Alexandria University Faculty of Medicine, Alexandria	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
	EL SALVADOR																
57	Imoversodad de El Salvador Facultad de Medicina, San Salvador	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
	ENGLAND																
58	University of Birmingham Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
59	University of Bristol Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
60	University of Cambridge Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..
61	University of Durham Medical School	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

MEDICAL LICENSURE IN THE UNITED STATES, 1957

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	
Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Nebraska	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Pennsylvania	Rhode Island	South Dakota	Texas	Virginia	Washington	West Virginia	Wisconsin	Alaska, Hawaii, Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	Number of Boards Examined by	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
0 2				1 0					3 1													15	12	3	20.0	7	1
																						1	0	1	100.0	1	2
0 1																						1	0	1	100.0	1	3
1 0												1 0					1 0	1 0				6	6	0	0.0	6	4
									0 1			0 3		1 0								17	7	10	58.0	6	5
				1 0					0 1			2 3		2 0			1 1					23	11	12	52,2	11	6
1 0									5 16			2 4					1 0					38	14	24	63.2	8	7
						1 0			1 0			1 1										10	6	4	40.0	7	8
																						2	1	1	50.0	2	9
			1 0						2 0	1 0		1 0					2 1					15	12	3	20.0	10	10
												1 0										1	1	0	0.0	1	11
																						2	0	2	100.0	2	12
																						1	1	0	0.0	1	13
									0 1								1 0					5	1	4	80.0	4	14
																						1	1	0	0.0	1	15
0 1 1 0									0 1			1 0										4	2	2	50.0	4	16
																	0 1					1	0	1	100.0	1	17
0 1														1 0								2	1	1	50.0	2	18
									1 1			1 2										6	2	4	66.7	3	19
									1 0			1 0		1 0			1 0				1 0	7	5	2	28.6	7	20
																						1	0	1	100.0	1	21
																						1	1	0	0.0	1	22
																2 0						2	2	0	0.0	1	23
0 1									2 1					1 0			0 1					8	5	3	37.5	6	24
1 0									3 3			1 0		1 0			1 0					15	11	4	26.7	9	25
									2 0													3	2	1	33.3	2	26
												0 1										1	0	1	100.0	1	27
									1 1													3	2	1	33,3	2	28
				1 0					2 1								1 0					6	5	1	16.7	4	29
0 1		1 0							2 0							2 0						12	8	4	33.3	7	30
		1 0																				1	1	0	0.0	1	31
												0 1					0 2					10	5	5	50.0	4	32
1 0																						2	2	0	0.0	2	33
																						1	0	1	100.0	1	34
																						2	0	2	100.0	2	35
0 1														1 0								2	1	1	50.0	2	36
							1 0		1 1													4	3	1	25.0	3	37
									1 0													1	1	0	0.0	1	38
																						1	1	0	0.0	1	39
														1 0								1	1	0	0.0	1	40
							1 0		1 0			2 0									1 0	11	7	4	36.3	8	41
																						1	0	1	100.0	1	42
																						1	0	1	100.0	1	43
																						1	0	1	100.0	1	44
1 2				1 0			1 0		7 7			3 1		4 0		5 4	2 2				1 0	131	61	70	53.4	16	45
									5 10													19	6	13	68.4	3	46
	1 0			1 0					5 6			0 2										22	9	13	59.1	7	47
									0 1				1 0									3	2	1	33.1	3	48
									0 2			1 0										4	1	3	75.0	3	49
1 0									1 2				1 0				0 1	1 0				8	5	3	37.5	6	50
							2 0		0 2								3 1				1 0 3	40	21	19	47.5	8	51
																	1 0					6	3	3	50.0	5	52
																						1	0	1	100.0	1	53
																						2	1	1	50.0	1	54
																						1	1	0	0.0	1	55
																						1	0	1	100.0	1	56
																						1	0	1	100.0	1	57
									0 1								0 2					3	0	3	100.0	2	58
									2 0													2	2	0	0.0	1	59
									5 0								1 0					9	9	0	0.0	5	60
	1 0								0 1	0 1							1 0					6	3	3	50.0	6	61
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	

TABLE 27.—FOREIGN-TRAINED PHYSICIANS EXAMINED FOR

Marginal Number	SCHOOL	Alabama		Arizona		California		Colorado		Connecticut		Delaware		District of Columbia		Florida		Georgia		Idaho		Illinois		Indiana		Iowa		Kansas		Maine		Maryland	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	ENGLAND—continued																														
62	University of Liverpool Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
63	University of London Faculty of Medicine	..	..	..	..	2	0	..	..	2	2	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..
64	University of Manchester Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
65	University of Oxford School of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
66	University of Sheffield Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
67	Licentiate of the Royal College of Physicians London, Member of the Royal College of Surgeons England	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	ESTONIA																														
68	Tartu Ulikooli, Faculte de Medecine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	1	1
	FINLAND																														
69	Helsingfors Universitet Medicinska Fakultedten, Helsingfors	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
70	Faculty of Medicine, Turku University, Turku	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	FORMOSA																														
71	National Defense Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	FRANCE																														
72	Universite de Lyon Faculte de Medecine et de Pharmacie	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..
73	Universite de Montpelier Faculte de Medecine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
74	Universite de Paris Faculte de Medecine	..	..	..	..	1	1	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	0	1
75	Universite de Toulouse Faculte de Medecine et de Pharmacie	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..
76	Universite de Strasbourg Faculte de Medecine	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
77	Universite de Nancy Faculte de Medecine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	GERMANY																														
78	Friedrich-Wilhelms Universitat Medizinische Fakultat, Berlin	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..
79	Rheinische Friedrich-Wilhelms Universitat Medizinische Fakultat, Bonn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..
80	Schlesische Friedrich-Wilhelms Universitat Medizinische Fakultat, Breslau	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..
81	Friedrich-Alexanders Universitat Medizinische Fakultat, Erlangen	..	..	..	..	0	1	..	..	0	1	..	..	..	..	1	0	..	..	..	..	0	6	..	..	..	..	..	..	2	0	1	1
82	Albert-Ludwigs Universitat Medizinische Fakultat, Freiburg	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
83	Georg August Universitat Medizinische Fakultat, Gottingen	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	1	1
84	Ernst-Moritz-Arndt Uni. Medizinische Fakultat, Greifswald	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..
85	Universitat Heidelberg Medizinische Fakultat	..	..	1	0	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	5	..	..	..	..	..	..	3	0	4	3
86	Christian-Albrechts Universitat Medizinische Fakultat, Kiel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	..	..	..	..	..	..	..	..	..
87	Albertus Universitat Medizinische Fakultat, Konigsberg	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
88	Universitat Leipzig Medizinische Fakultat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
89	Philipps Universitat Medizinische Fakultat, Marburg	..	..	1	0	2	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..
90	Ludwig-Maximilians Universitat Medizinische Fakultat, Munich	..	..	1	0	4	0	..	..	2	0	1	0	..	..	1	0	..	..	..	..	4	7	..	..	..	..	..	..	0	2	3	6
91	Universitat Rostock Medizinische Fakultat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1
92	Eberhard-Karls Universitat Medizinische Fakultat, Tubingen	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	..	..	1	0	..	..	..	..	0	1
93	Julius-Maximilians Universitat Medizinische Fakultat, Wurzburg	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	2	0
94	Hamburgische Universitat Medizinische Fakultat, Hamburg	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	1	0	1	0
95	Universitat Koln Medizinische Fakultat, Koln	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
96	Johann Wolfgang Goethe Universitat Medizinische Fakultat, Frankfurt-am-Main	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	..	..	..	..	..	..	2	1
97	Westfalische Wilhelms Uni. Medizinische Fakultat, Munster	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
98	Medizinische Akademie Dusseldorf	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..
99	Humboldt University Medical School, Berlin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	..	..	..	..	..	..	..	..
100	Medizinische Fakultat der Johannes Guttenberg Uni., Mainz	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
101	Freien Universitat Medizinische Fakultat, Berlin	..	..	..	..	1	0	..	..	0	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	0
	GREECE																														
102	National University of Athens School of Medicine	..	..	..	..	1	4	..	..	3	1	1	0	..	..	..	..	..	..	..	..	2	15	..	..	..	..	..	..	2	1	2	3
103	Aristotle University of Salonika	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0
	GUATEMALA																														
104	Uni. Nacional de Guatemala Facultad de Ciencias Medicas	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	HAITI																														
105	Ecole Nationale de Medecine et de Pharmacie, Port-au-Prince	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	..	..	..	..	..	..	1	0
	HONDURAS																														
106	Universidad Central de la Republica de Honduras Facultad de Medicina, Cirurgia y Farmacia, Tegucigalpa	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	ICELAND																														
107	Haskolo Islands Laee Knadeildin, Reykjavik	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
	HUNGARY																														
108	Magyar-Kiralyi Pazmany Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	1	0	3	1
109	Magyar-Kiralyi Ferencz Josef Tudomanyegyetem Orvostudomanyi Kara, Szeged	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0
110	Magyar-Kiralyi Erzsebet Tudomanyegyetem Orvostudomanyi, Pecs	..	..	..	..	0	2	..	..	0	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
111	Magyar-Kiralyi Tisza-Istvan Tudomanyegyetem Orvost Fakultasa, Debrecen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
	INDIA																														
112	University of Calcutta Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	1	0
113	University of Punjab Medical College	..	..	..	..	2	0	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
114	University of Madras Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
115	University of Uthal Medical College, Cuttack	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	IRAN																														
116	Madresseh Teb Medical School, Teheran	..	..	..	..	1	0	..	..	2	1	..	..	..	..	..	..	..	..	..	..	0	4	..	..	..	..	..	..	..	..	5	2
117	American School Medical Department, Urmia	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	IRAQ																														
118	Royal Iraq Medical College, Bagdad	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	2	1
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16	

MEDICAL LICENSURE IN THE UNITED STATES, 1957

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	
Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Nebraska	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Pennsylvania	Rhode Island	South Dakota	Texas	Virginia	Washington	West Virginia	Wisconsin	Alaska, Hawaii, Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	Number of Boards Examined by	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	1	1	50.0	1	62
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1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	8	6	2	25.0	5	67
0 1	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	0 5	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	10	2	8	80.0	5	68
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.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	70
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	71
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4	2	2	50.0	3	72
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	5	4	1	20.0	4	73
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	7 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	19	13	6	31.6	6	74
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	75
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4	2	2	50.0	4	76
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	77
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	1 6	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0	.. ..	18	9	9	50.0	6	78
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3	1	2	66.7	3	79
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	80
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	3 2	.. ..	1 0	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	23	9	14	60.9	10	81
1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	2 0	.. ..	1 0	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	9	8	1	11.1	6	82
.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	3 2	.. ..	1 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	19	13	6	31.6	8	83
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	84
.. ..	1 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	3 1	.. ..	.. ..	.. ..	.. ..	5 1	.. ..	.. ..	.. ..	.. ..	37	24	13	35.1	10	85
.. ..	1 0	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	11	8	3	27.3	4	86
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	87
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4	2	2	50.0	2	88
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	11	9	2	18.2	7	89
0 1	3 0	2 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	5 2	.. ..	.. ..	9 6	.. ..	.. ..	.. ..	3 0	6 2	.. ..	.. ..	.. ..	1 0	72	46	26	36.1	17	90
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	0	2	100.0	2	91
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	1 2	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	17	7	10	58.8	7	92
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	3 2	.. ..	.. ..	.. ..	.. ..	13	9	4	30.8	6	93
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0	3 1	.. ..	.. ..	.. ..	.. ..	16	12	4	25.0	9	94
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3	1	2	66.7	2	95
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	18	10	8	44.4	7	96
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	0 2	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	7	3	4	57.1	4	97
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	2	3	60.0	3	98
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	3	0	3	100.0	2	99
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	3	0	0.0	3	100
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	3	2	40.0	4	101
0 1	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 5	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	.. ..	.. ..	50	17	33	66.0	12	102
.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	7	7	0	0.0	5	103
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	0.0	1	104
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	1 0	6	3	3	50.0	5	105
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4	2	2	50.0	1	106
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	107
0 1	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	4 14	.. ..	.. ..	2 4	1 0	.. ..	2 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	38	15	23	60.5	12	108
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	0 1	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	6	2	4	66.7	6	109
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	8	2	6	75.0	5	110
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	0 3	.. ..	.. ..	1 1	.. ..	.. ..	1 0	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	10	6	4	40.0	6	111
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	2	1	33.3	3	112
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	4	1	20.0	2	113
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	114
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	115
1 1	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 3	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	2 1	.. ..	.. ..	.. ..	.. ..	28	15	13	46.4	9	116
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	117
.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	7	5	2	28.6	4	118
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	

TABLE 27.—FOREIGN-TRAINED PHYSICIANS EXAMINED FOR

Marginal Number	SCHOOL	Alabama P	Alabama F	Arizona P	Arizona F	California P	California F	Colorado P	Colorado F	Connecticut P	Connecticut F	Delaware P	Delaware F	District of Columbia P	District of Columbia F	Florida P	Florida F	Georgia P	Georgia F	Idaho P	Idaho F	Illinois P	Illinois F	Indiana P	Indiana F	Iowa P	Iowa F	Kansas P	Kansas F	Maine P	Maine F	Maryland P	Maryland F
	IRELAND																																
119	Queen's University Faculty of Medicine, Belfast					2	0			5	0											2	0									1	0
120	National University of Ireland Medical College					5	0			17	5			1	0							6	1									2	1
121	University of Dublin School of Physic									1	0					1	0					2	1										
122	Licentiate of the Royal College of Physicians of Ireland																													1	0	1	0
123	Licentiate of the Royal College of Physicians, Licentiate of the Royal College of Surgeons of Ireland																																
	ISRAEL																																
124	Hadassah Medical School, Hebrew University, Jerusalem																															1	0
	ITALY																																
125	Universita di Bologna Facolta di Medicina e Chirurgia					0	1			3	1											1	3							1	3	1	2
126	Universita di Milano Facolta di Medicina e Chirurgia					1	0															2	0							1	0	3	0
127	Universita di Firenze Facolta di Medicina e Chirurgia					1	0															0	1									0	1
128	Universita di Catania Facolta di Medicina e Chirurgia					0	1																							0	3		
129	Universita di Genova Facolta di Medicina e Chirurgia																					0	1									0	1
130	Universita di Messina Facolta di Medicina e Chirurgia																															0	2
131	Universita di Modena Facolta di Medicina e Chirurgia									0	1																						
132	Universita di Napoli Facolta di Medicina e Chirurgia									1	0											0	2										
133	Universita di Padova Facolta di Medicina e Chirurgia															1	0					0	2							1	0		
134	Universita di Palermo Facolta di Medicina e Chirurgia																					1	3							1	0	0	1
135	Universita di Parma Facolta di Medicina e Chirurgia																					0	1					1	0				
136	Universita di Pavia Facolta di Medicina e Chirurgia																					0	1										
137	Universita di Perugia Facolta di Medicina e Chirurgia															1	0															0	1
138	Universita di Pisa Facolta di Medicina e Chirurgia																																
139	Universita di Roma Facolta di Medicina e Chirurgia									0	1											1	6							2	1	3	2
140	Universita di Siena Facolta di Medicina e Chirurgia																																
141	Universita di Bari Facolta di Medicina e Chirurgia									1	1											0	1										
142	Libera Universita de Camerino Facolta di Medicina e Chirurgia																																
143	Universita di Torino di Medicina e Chirurgia					2	0			1	0											1	1							1	0		
	JAPAN																																
144	Tokyo Imperial University Faculty of Medicine					0	1																										
145	Chiba University of Medicine					0	1																										
146	Tohoku Imperial University Medical Faculty, Sendai																															1	0
147	Kyoto Medical College											0	1																				
148	Keio Gijuku University Medical Faculty, Tokyo																																
149	Teikoku Women's Medical-Pharmacological College, Tokyo					0	1											1	0														
	KOREA																																
150	Severance Union Medical College, Seoul																															1	1
151	College of Medicine, Seoul National University, Seoul					1	0																										
152	Seoul Women's Medical College					0	1																										
	LATVIA																																
153	Larvijas Universitate Medicinas Fakultate, Riga					1	0															0	1							2	0	0	2
	LEBANON																																
154	American University of Beirut School of Medicine					2	0			1	0					1	0			1	0	2	2									3	2
155	Faculte Francaise de Medecine de l'Universite de St. Joseph, Beyrouth									0	1																			1	0	1	0
	LITHUANIA																																
156	University of Kaunas Medical Faculty					1	0															3	7									0	2
	MANCHURIA																																
157	Mukden Medical College					1	0																									1	0
	MEXICO																																
158	Universidad Nacional Autonoma de Mexico Facultad de Medicina, Mexico City					4	5			1	1											6	16			1	0					3	1
159	Escuela de Medicina de Nuevo Leon, Monterrey																					1	2										
160	Universidad de Guadalajara Facultad de Ciencias Medicas y Biologicas			1	1	1	1															0	2										
161	Escuela Medico Militar, Mexico City																																
162	Facultad de la Universidad Nacional del sureste, Facultad Medicina, Merida, Yucatan																					0	1										
163	Escuela Nacional de Medicina Homeopatico, Mexico City																																
	NETHERLANDS																																
164	Universiteit van Amsterdam Geneeskunde Faculteit					1	1			1	1					1	1					4	1	1	0							2	0
165	Rijks Universiteit te Groningen Medische Faculteit					0	1																										
166	Rijks Universiteit te Leiden Faculteit der Geneeskunde									2	0			1	0	1	0					0	3	1	0	2	0					2	0
167	Rijks Universiteit te Utrecht Faculteit der Geneeskunde															1	0					2	0									1	0
	NICARAGUA																																
168	Universidad de Nicaragua Facultades de Medicina en Leon y en Granada					0	2																										
	NORWAY																																
169	Kongelige Frederiks Universitet Medisinske Fakultet, Oslo																																
	PERU																																
170	Universidad Mayor de San Marcos de Lima Facultad de Medicina									1	1											2	4					0	1			3	0
	PHILIPPINES																																
171	University of Santo Tomas Faculty of Medicine and Surgery					0	5															3	3									4	3
172	University of the Philippines College of Medicine, Manila					1	0									1	0					0	1									1	0
173	Centro Medical College, Manila																																
174	Manila Central University College of Medicine, Manila					1	1																										
	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																

MEDICAL LICENSURE IN THE UNITED STATES, 1957

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	
Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Nebraska	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Pennsylvania	Rhode Island	South Dakota	Texas	Virginia	Washington	West Virginia	Wisconsin	Alaska, Hawaii, Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	Number of Boards Examined by	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	13	11	2	15.4	6	119
3 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	47	35	12	25.5	8	120
1 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	7	6	1	14.3	5	121
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	2	0	0.0	2	122
1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	3	0	0.0	3	123
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	124
0 1	.. ..	2 0	. .	0 2	.. ..	.. ..	19 1	.. ..	16 20	.. ..	.. ..	2 2	.. ..	4 1	.. ..	.. ..	3 0	.. ..	1 0	.. ..	.. ..	90	53	37	41.1	14	125
0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	2 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	15	12	3	20.0	9	126
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	6	1	5	83.3	5	127
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	1	4	80.0	3	128
1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	6	3	3	50.0	5	129
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 2	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	8	3	5	62.5	4	130
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	0	2	100.0	2	131
1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4 0	.. ..	5 10	.. ..	.. ..	0 1	.. ..	5 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	30	17	13	43.3	8	132
0 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	3 0	.. ..	3 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	14	10	4	28.6	8	133
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	3 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	17	8	9	52.9	6	134
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	2	1	33.3	3	135
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	2 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	2	3	60.0	3	136
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4	2	2	50.0	3	137
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	0	2	100.0	1	138
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	20 1	.. ..	13 25	.. ..	.. ..	5 2	.. ..	2 0	.. ..	.. ..	1 8	.. ..	1 0	.. ..	.. ..	90	49	41	45.6	11	139
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	1	1	50.0	2	140
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	8	2	6	75.0	3	141
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	2	0	0.0	1	142
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	2 4	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	15	10	5	33.3	7	143
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	144
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	145
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	146
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	147
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	1	1	50.0	1	148
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	1	1	50.0	2	149
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	2	1	33.3	2	150
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	151
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	152
.. ..	2 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4 11	.. ..	1 1	0 5	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	33	13	20	60.6	10	153
2 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4 2	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	1 0	1 0	.. ..	.. ..	.. ..	.. ..	27	20	7	25.9	12	154
0 2	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	9	5	4	44.4	7	155
.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 12	.. ..	.. ..	4 4	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	37	12	25	67.6	8	156
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	2	0	0.0	2	157
1 2	1 0	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	2 1	.. ..	.. ..	3 1	.. ..	1 0	.. ..	7 3	2 2	.. ..	1 0	.. ..	21 1	88	54	34	38.6	15	158
.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	9 2	1 1	.. ..	.. ..	.. ..	.. ..	18	13	5	27.8	5	159
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	6	2	4	66.7	3	160
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	161
.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	2	1	33.3	3	162
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1	1	0	0.0	1	163
1 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	1 0	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0	.. ..	1 0	1 0	.. ..	.. ..	25	20	5	20.0	15	164
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	2	1	1	50.0	2	165
0 1	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	2 0	1 0	6 1	.. ..	.. ..	1 1	2 0	1 0	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	33	26	7	21.2	16	166
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0	.. ..	1 1	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	1 0	1 0	.. ..	.. ..	.. ..	11	10	1	9.1	9	167
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	0 1	4	1	3	75.0	3	168
0 1	.. ..	1 0	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	1 0	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	2	3	60.0	5	169
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	14	8	6	42.8	5	170
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	1 2	25	12	13	52.0	6	171
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	9	6	3	33.3	6	172
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	1	0	1	100.0	1	173
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3	2	1	33.3	2	174
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	

TABLE 27.—FOREIGN-TRAINED PHYSICIANS EXAMINED FOR

Marginal Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Marginal Number	SCHOOL	Alabama	Arizona	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Maine	Maryland
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F
	POLAND																
175	Uniwersytet Jagiellonski Wydzial Lekarski, Cracow	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
176	Uniwersytet Jana Kazimierza Wydzial Lekarski, Lwow	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
177	Uniwersytet Jozefa Pilsudskiego, Warsaw	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	.. ..	.. ..	0 1
178	Uniwersytet Poznanski Wydzial Lekarski, Poznan	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	0 1
179	Uniwersytet Stefana Batorego Wydzial Lekarski, Wilno	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	.. ..
	PORTUGAL																
180	Universidade de Coimbra Faculdade de Medicina	.. ..	.. ..	.. ..	.. ..	2 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1
181	Universidade de Lisboa Faculdade de Medicina	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	RUMANIA																
182	Universitatea din Bucuresti Facultatea de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
183	Universitatea din Iasi Facultatea de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
184	Universitatea din Cluj Facultatea de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	SCOTLAND																
185	University of Aberdeen Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
186	University of St. Andrews Conjoint Medical School	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
187	University of Edinburgh Faculty of Medicine	.. ..	.. ..	1 0	.. ..	1 1	.. ..	.. ..	1 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
188	University of Glasgow Medical Faculty	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
189	St. Mungo's College Medical School, Glasgow	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
190	Licentiate of the Royal College of Physicians of Edinburgh, Licentiate of the Royal College of Surgeons of Edinburgh, Licentiate of the Royal Faculty of Physicians and Surgeons of Glasgow	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
191	Polish School of Medicine, Edinburgh	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0
	SOUTH AFRICA																
192	University of Witwatersrand Medical School, Johannesburg	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
193	University of Cape Town Faculty of Medicine	.. .	1 0	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
	SPAIN																
194	Universidad de Barcelona Facultad de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
195	Universidad de Sevilla Facultad de Medicina	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
196	Universidad Central de Espana Facultad de Medicina, Madrid	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	1 0
197	Universidad de Santiago Facultad de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
198	Universidad de Zaragoza Facultad de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	0 1
199	Universidad de Valencia Facultad de Medicina	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	1 1
200	Universidad de Salamanca Facultad de Medicina	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	0 1
	SWEDEN																
201	Kungl. Karolinska Universitetet Medicinska Fakulteten, Lund	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
202	Karolinska Mediko-Kirurgiska Institutet, Stockholm	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0
	SWITZERLAND																
203	Universitat Basel Medizinische Fakultat	.. .	1 0	1 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1
204	Universitat Bern Medizinische Fakultat	.. ..	.. ..	1 0	.. ..	5 1	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0
205	Universite de Geneve Faculte de Medecine	.. ..	.. ..	2 0	3 0	6 1	.. ..	2 0	4 0	1 0	.. ..	3 0	1 0	.. ..	.. ..	0 1	6 0
206	Universite de Lausanne Faculte de Medecine	.. ..	.. ..	.. ..	1 0	4 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
207	Universitat Zurich Medizinische Fakultat	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0
	TURKEY																
208	University of Istanbul Medical Faculty	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	1 0	.. ..	.. ..	6 5
209	Central Turkey College Medical Faculty	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
210	Ankara University Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
	UNION OF SOCIALIST SOVIET REPUBLICS																
211	First Leningrad Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
212	Voronezh Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
213	Kazan Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
214	Kharkov Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	0 1
215	Kiev Medical Institute	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..
216	First Moscow Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 2	.. ..	.. ..	.. ..	.. ..	.. ..
217	Odessa Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
218	Tomsk Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
219	Dnepropetrovsk Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0
220	Second Moscow Medical Institute	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
221	Kuban Red Army Institute of Medicine, Krasnodar	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
222	Tbilisi Institute of Medicine, Georgia	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..
223	Ashkhabad Institute of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
224	Imperial New Russian University, Odessa	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	WALES																
225	Welsh National School of Medicine, Cardiff	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..
	YUGOSLAVIA																
226	Zagrebaskog Universiteta Medecinski Fakultet	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 2	.. ..	.. ..	.. ..	.. ..	2 2
227	Beogradskog Universiteta Medecinski Fakultet	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 3	.. ..	.. ..	.. ..	.. ..	.. ..
	Totals	1	7	140	4	129	5	8	43	5	1	379	6	7	3	35	200
	Totals Examined Passed	1	6	90	4	87	4	8	28	5	1	128	6	7	2	24	126
	Totals Examined Failed	0	1	50	0	42	1	0	15	0	0	2,511	0	0	1	11	74
	Percentage Failed	0.0	85.7	55.6	0.0	32.6	20.0	0.0	35.0	0.0	0.0	66.0	0.0	0.0	33.3	31.4	37.0
	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

MEDICAL LICENSURE IN THE UNITED STATES, 1957

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	
Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Nebraska	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Pennsylvania	Rhode Island	South Dakota	Texas	Virginia	Washington	West Virginia	Wisconsin	Alaska, Hawaii, Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	Number of Boards Examined by	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
									0 4													5	0	5	100.0	2	175
	1 0								2 6			0 1										11	3	8	72.7	4	176
							1 0		2 3				1 0									11	5	6	54.5	5	177
									2 2													6	2	4	66.7	3	178
									0 1			0 1										4	0	4	100.0	3	179
																					1 0	6	4	2	33.3	2	180
																						1	0	1	100.0	1	181
									0 4			1 0					1 0					7	3	4	57.1	4	182
									0 1													2	0	2	100.0	2	183
									1 0										1 0			2	2	0	0.0	2	184
									0 2								0 1					3	0	3	100.0	2	185
													1 0				1 0					3	2	1	33.3	3	186
									2 0								1 0					8	7	1	12.5	6	187
		2 0							5 1												1 0	10	9	1	10.0	4	188
								1 0														1	1	0	0.0	1	189
									1 0			0 1										3	2	1	33.3	3	190
									0 1													3	2	1	33.3	3	191
	1 0								1 0													2	2	0	0.0	2	192
2 0		1 0							1 1													9	8	1	11.1	6	193
1 0																	1 0				4 0	7	7	0	0.0	3	194
																	1 0					2	1	1	50.0	2	195
																					24 1	33	29	4	12.1	6	196
							1 0		2 1													1	0	1	100.0	1	197
																						2	1	1	50.0	2	198
																						8	6	2	25.0	4	199
																		1 1				3	1	2	66.7	2	200
																					1 0						
																1 0						1	1	0	0.0	1	201
																		1 0				5	5	0	0.0	5	202
									5 2			1 0										13	10	3	23.1	6	203
	1 0						2 0		17 9			1 0	2 0						0 1			42	31	11	26.2	10	204
				1 0		0 1	5 0	0 2	14 13			3 0						1 1	1 0		1 0 2 0	75	56	19	25.3	20	205
0 1						1 0	4 0	1 0	15 14			2 0	1 0		1 0					2 0 1 0		49	34	15	30.6	13	206
	1 0			1 0		1 0			19 0			1 0	1 0					2 0		2 0		34	33	1	2.9	13	207
																						28	18	10	35.7	9	208
																		2 0				2	0	2	100.0	1	209
1 0									2 3		1 0	1 0						0 2				1	1	0	0.0	1	210
																						1	1	0	0.0	1	211
																	1 0					1	0	1	100.0	1	212
									0 1													2	1	1	50.0	2	213
									0 1													7	1	6	85.1	3	214
														1 0								6	2	4	66.7	4	215
									0 1			1 3										4	0	4	100.0	2	216
									0 2			1 2										4	2	2	50.0	4	217
	1 0								0 1													1	1	0	0.0	1	218
									1 0									1 0				1	1	0	0.0	1	219
																						1	1	0	0.0	1	220
												1 0										1	0	1	100.0	1	221
												0 1										1	0	1	100.0	1	222
								0 1														1	0	1	100.0	1	223
									1 0													1	1	0	0.0	1	224
									2 0													5	4	1	20.0	4	225
									1 2									0 1				11	4	7	63.6	4	226
									0 3			0 1										6	0	6	100.0	2	227
53	30	17	2	12	1	8	93	5	501	3	3	159	15	37	13	43	137	9	8	7	80	2,299					
24	30	17	2	9	1	5	86	3	268	1	2	86	15	36	13	34	91	9	7	7	72		1,345				
29	0	0	0	3	0	3	7	2	323	2	1	73	0	1	0	9	46	0	1	0	8			954			
54.7	0.0	0.0	0.0	25.0	0.0	37.5	7.5	40.0	54.7	66.6	33.3	45.9	0.0	2.7	0.0	21.0	33.6	0.0	12.5	0.0	10.0				41.5		
17	18	9	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	

TABLE 28.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1957*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	35.0
1937	920	637	30.8
1938	1,164	716	38.5
1939	1,691	839	50.4
1940	2,088	948	54.7
1941	1,717	698	59.2
1942	1,630	890	45.4
1943	1,031	518	49.8
1944	691	325	53.0
1945	475	209	56.0
1946	495	221	55.3
1947	601	283	52.9
1948	639	311	51.3
1949	737	319	56.7
1950	799	359	55.0
1951	1,006	524	47.9
1952	1,208	648	46.3
1953	1,463	796	46.3
1954	1,642	943	42.6
1955	1,771	1,042	41.4
1956	1,783	1,012	43.2
1957	2,299	1,345	41.5
Totals	27,867	14,846	46.8

physicians and American citizens educated abroad. Graduates of medical schools in the Philippines, Iceland, 16 South and Central American countries, 28 countries of Europe, and 14 countries in Asia were represented at examinations. The number totaled 2,299. Graduates of 233 medical schools and 5 licensing corporations were examined. The number who were successful was 1,345; failures numbered 954, or 41.5%. More than 50 graduates each from the universities of Habana, Mexico City, Bologna, Rome, Munich, and Genève were tested in 1957, and more than 25 graduates each from 18 other schools were examined.

The greatest number examined by any one state was 591 in New York, of whom 268 passed, and 323, or 54.7%, failed. Illinois examined 379, of whom 128 passed, and 251, or 66%, failed. Maryland examined 200, of whom 126 passed, and 74 (37%) failed; 159 were tested in Ohio, 86 passed, and 73 failed (45.9%). More than 125 were also examined in California, Connecticut, and Virginia. Other states examined fewer than 100.

TABLE 29.—*Foreign-Trained Physicians Licensed by State Boards, 1952-1957*

	Examination							Reciprocity and Endorsement							Grand Totals
	1952	1953	1954	1955	1956	1957	Total	1952	1953	1954	1955	1956	1957	Total	
Alabama	2	1	2	1	1	1	8	1	0	0	0	0	1	2	10
Arizona	1	1	0	2	3	6	13	0	0	1	4	1	0	6	19
Arkansas	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
California	98	95	83	135	177	90	678	1	0	1	0	0	0	2	680
Colorado	1	1	1	3	0	4	10	0	0	0	0	0	0	0	10
Connecticut	7	21	13	13	48	87	189	4	9	19	23	16	19	90	279
Delaware	2	1	1	1	4	4	13	2	0	3	0	0	1	6	19
Dist. of Columbia	2	2	6	2	2	8	22	4	6	14	10	12	16	62	84
Florida	14	11	13	27	33	28	126	0	0	0	0	0	0	0	126
Georgia	2	6	6	2	5	5	26	1	2	3	3	6	2	17	43
Idaho	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
Illinois	153	208	216	157	261	128	1,123	0	0	3	0	0	0	3	1,126
Indiana	0	0	20	2	6	6	34	2	0	16	4	9	21	52	86
Iowa	3	10	5	4	18	7	47	5	3	2	1	1	3	15	62
Kansas	1	0	1	3	5	2	12	0	0	0	0	0	0	0	12
Kentucky	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
Louisiana	0	1	3	1	0	0	5	0	0	0	0	0	0	0	5
Maine	4	13	16	44	43	24	144	3	2	7	6	4	5	27	171
Maryland	31	30	44	55	106	126	392	0	0	1	0	1	1	3	395
Massachusetts	10	10	7	11	27	24	89	1	1	4	2	4	0	12	101
Michigan	10	15	25	40	23	30	143	1	5	7	17	14	23	67	210
Minnesota	10	23	17	17	16	17	100	0	0	0	0	0	1	1	101
Mississippi	1	0	1	2	0	2	6	0	0	0	0	0	0	0	6
Missouri	5	3	4	14	20	9	55	0	0	1	0	2	0	3	58
Montana	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
Nebraska	0	0	0	0	2	1	3	0	1	1	0	0	1	3	6
Nevada	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
New Hampshire	2	1	4	3	9	5	24	1	1	3	3	5	7	23	47
New Jersey	3	6	19	23	52	86	189	21	25	24	22	42	23	157	346
New Mexico	1	0	3	4	2	3	13	1	4	1	1	2	0	9	22
New York	171	172	184	159	467	268	1,421	31	15	8	7	5	1	67	1,488
North Carolina	4	11	8	0	2	1	26	1	2	1	2	1	1	8	34
North Dakota	6	1	0	5	9	2	23	0	0	0	0	0	0	0	23
Ohio	34	66	177	160	166	86	629	23	36	48	47	27	19	200	829
Oklahoma	0	0	0	0	0	0	0	0	1	1	1	0	0	3	3
Oregon	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
Pennsylvania	6	7	12	6	10	15	56	0	0	0	0	0	0	0	56
Rhode Island	23	26	34	35	47	36	201	1	0	1	1	2	4	9	210
South Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota	5	1	2	4	1	13	26	0	0	0	0	1	3	4	30
Tennessee	1	0	1	0	2	0	4	0	1	0	0	3	0	4	8
Texas	6	18	14	16	28	34	116	0	0	0	3	4	1	8	124
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	0	0	0	0	0	0	0	0	0	2	3	2	2	9	9
Virginia	8	14	23	54	115	91	305	3	0	0	0	0	0	3	308
Washington	4	2	5	5	7	9	32	3	4	4	6	5	7	29	61
West Virginia	1	4	1	0	8	7	21	0	0	0	0	0	0	0	21
Wisconsin	3	1	3	2	2	7	18	1	0	3	1	8	13	26	44
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alaska, Hawaii, and Puerto Rico	13	13	29	30	50	72	213	3	3	3	0	2	5	16	229
Totals	648	796	943	1,042	1,783	1,345	6,557	115	121	188	168	180	180	952	7,509

Table 28 presents the number of graduates of foreign faculties of medicine examined for medical licensure in the United States in 28 years (1930-1957). In 1936 the number of foreign-trained physicians seeking licensure in the United States began to increase, and by 1940 there were over three times as many as were tested in 1936. Beginning in 1944 the number examined began to decrease until 1951, when there was a noticeable increase. In each succeeding year the number examined has increased. In 1957, the increase over the previous year was 516. At no time in the 28-year period did fewer than 30% fail in a given year.

In table 29 figures are given for a five-year period (1952-1957), showing the number of foreign-trained physicians licensed by each state board, both after written examination and by endorsement of credentials. While table 28 reflects the candidates registered after examination only and indicates the percentage failing in each year, table 29 records the total licensed in each state. In the period shown there were 6,557 licenses issued to foreign-trained physicians after written examination and 952 by endorsement of credentials. The total number of such licentiates registered was 7,509.

Represented in table 30 are figures regarding the foreign-trained physicians registered in 1957 who were not previously licensed in the United States and who therefore are additions to the medical profession. There were 1,014 in this group, of whom 991 were licensed by written examination and 23 by endorsement of credentials. Comparative figures for seven previous years together with the figures for 1957 are given in table 31. In eight years (1950-1957) there were 5,557 foreign-trained physicians who were added to the physician population of the United States, 5,354 obtaining licensure by written examination and 203 by endorsement of credentials.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Twenty states, the District of Columbia, and Alaska have adopted by legislative action basic science requirements underlying the practice of the

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Arkansas	Dr. Joe Verser, Secretary, Harrisburg.
California	Dr. Louis E. Jones, Secretary, Room 536, 1020 N St., Sacramento.
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Connecticut	Dr. Creighton Barker, Secretary, 160 St. Ronan St., New Haven.
Delaware	Dr. Joseph S. McDaniel, Secretary, Professional Building, Dover.
District of Columbia	Mr. Paul Foley, Deputy Director, 1740 Massachusetts Ave., N. W., Washington.
Florida	Dr. Homer L. Pearson, Secretary, 901 N. W. 17th St., Miami 36.
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Idaho	Mr. Armand L. Bird, Executive Secretary, 364 Sonna Bldg., Boise.
Illinois	Mr. Fredric B. Selcke, Superintendent of Registration, Capitol Building, Springfield.
Indiana	Miss Ruth V. Kirk, Executive Secretary, 538 K. of P. Bldg., Indianapolis.
Iowa	Mr. Ronald V. Saf, Executive Secretary, State Office Building, Des Moines 19.
Kansas	Dr. F. J. Nash, New Brotherhood Building, Kansas City.
Kentucky	Dr. Russell E. Teague, 620 South Third St., Louisville 2.
Louisiana	Dr. Edwin H. Lawson, Secretary, 930 Hibernia Bank Bldg., New Orleans 12.
Maine	Dr. Adam P. Leighton, Room 514, 142 High St., Portland.
Maryland	Dr. Frank K. Morris, 1211 Cathedral St., Baltimore 1.
Massachusetts	Dr. Robert C. Cochrane, Secretary, Room 37, State House, Boston 33.
Michigan	Dr. E. C. Swanson, Executive Secretary, 118 Stevens T. Mason Bldg., West Michigan Ave., Lansing 8.
Minnesota	Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.
Mississippi	Dr. R. N. Whitfield, Assistant Secretary, Old Capitol, Jackson 113.
Missouri	Mr. John A. Hailey, Executive Secretary, Box 4, State Capitol Building, Jefferson City.
Montana	Dr. Thomas L. Hawkins, Secretary, 555 Fuller Ave.,.Helena.
Nebraska	Mr. Husted K. Watson, Director, Room 1009, State Capitol Building, Lincoln 9.
Nevada	Dr. George H. Ross, Secretary, 112 North Curry St., Carson City.
New Hampshire	Dr. Mary M. Atchison, Secretary, 107 State House, Concord.
New Jersey	Dr. Patrick H. Corrigan, Secretary, 28 West State St., Trenton.
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Rhode Island	Mr. Thomas B. Casey, Administrator, 366 State Office Bldg., Providence.
South Carolina	Dr. Harold E. Jervey, Secretary, 1329 Blanding St., Columbia.
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Texas	Dr. M. H. Crabb, Secretary, 1714 Medical Arts Bldg., Fort Worth 2.
Utah	Mr. Frank E. Lees, Director, 324 State Capitol Bldg., Salt Lake City 1.
Vermont	Dr. F. J. Lawliss, Secretary, Richford.
Virginia	Dr. K. D. Graves, Secretary, 631 First St., S. W., Roanoke. Address correspondence to Board of Medical Examiners.
Washington	Mr. Thomas A. Carter, Secretary, Capitol Building, Olympia.
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Alaska	Dr. W. M. Whitehead, Secretary, 172 South Franklin St., Juneau.
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Guam	Dr. S. F. Provencher, Acting Secretary, Marianos Islands, Agana.
Hawaii	Dr. I. L. Tilden, Secretary, 1020 Kapiolani St., Honolulu.
Puerto Rico	Mr. Joaquin Mercado Cruz, Secretary, Box 9156, Santurce.
Virgin Islands	Dr. Earle M. Rice, Secretary, St. Thomas.

healing art. A basic science law provides for the establishment of a board of examiners and requires that each person who desires to practice the healing arts appear before the board and demonstrate his knowledge of the basic sciences. These boards have no licensing powers. A certificate of proficiency in

TABLE 30.—*Graduates of Foreign Medical Faculties Representing Additions to the Medical Profession, 1957*

	Examination	Reciprocity and Endorsement	Total
Alabama	1	0	1
Arizona	2	0	2
Arkansas	0	0	0
California	36	0	36
Colorado	0	0	0
Connecticut	57	1	58
Delaware	3	0	3
District of Columbia	6	4	10
Florida	15	0	15
Georgia	4	0	4
Idaho	1	0	1
Illinois	113	0	113
Indiana	6	9	15
Iowa	9	0	9
Kansas	1	0	1
Kentucky	0	0	0
Louisiana	0	0	0
Maine	21	0	21
Maryland	82	0	82
Massachusetts	17	0	17
Michigan	10	0	10
Minnesota	14	0	14
Mississippi	3	0	3
Missouri	4	0	4
Montana	0	0	0
Nebraska	1	0	1
Nevada	0	0	0
New Hampshire	3	2	5
New Jersey	86	0	86
New Mexico	3	0	3
New York	156	0	156
North Carolina	1	0	1
North Dakota	1	0	1
Ohio	81	1	82
Oklahoma	0	0	0
Oregon	0	0	0
Pennsylvania	9	0	9
Rhode Island	33	0	33
South Carolina	0	0	0
South Dakota	13	0	13
Tennessee	0	0	0
Texas	29	0	29
Utah	0	0	0
Vermont	0	1	1
Virginia	81	0	81
Washington	8	2	10
West Virginia	6	0	6
Wisconsin	5	0	5
Wyoming	0	0	0
Alaska	0	0	0
Canal Zone	0	1	1
Guam	0	2	2
Hawaii	0	0	0
Puerto Rico	70	0	70
Virgin Islands	0	0	0
Totals	991	23	1,014

fundamental sciences is issued that is a prerequisite to eligibility to secure a license to practice medicine or other method of healing.

The term healing art, as defined by law, includes any system, treatment, operation, diagnosis, prescription, or practice for the ascertainment, cure, relief, palliation, adjustment, or correction of any human disease, ailment, deformity, or injury, or unhealthy or abnormal physical or mental condition, and includes specifically but not by way of limitation the practice of medicine and surgery; the practice of osteopathy; and the practice of chiropractic, or other branches of healing.

The states comprising this group, together with the year of enactment of the basic science law are recorded on table 32. As of July 1, 1957, the practice acts governing medicine, osteopathy, and chiro-

TABLE 31.—*Additions to the Medical Profession Representing Graduates of Foreign Medical Faculties 1950-1957*

Year	Examination	Reciprocity and Endorsement	Totals
1950	287	41	308
1951	425	25	450
1952	545	24	569
1953	662	23	685
1954	749	23	772
1955	881	26	907
1956	834	18	852
1957	991	23	1,014
Totals	5,354	203	5,557

practic in the state of Kansas were repealed, and a new "Healing Arts Act" replaced the three previous boards. The act provides for the appointment of a "Healing Arts Board" and a "Basic Science Board." The Basic Science Board's function is to

TABLE 32.—*States Having Basic Science Laws and Year of Enactment*

Alaska	1946	Nebraska	1927
Arizona	1936	Nevada	1951
Arkansas	1929	New Mexico	1941
Colorado	1937	Oklahoma	1937
Connecticut	1925	Oregon	1934
District of Columbia	1929	Rhode Island	1940
Florida	1939	South Dakota	1939
Iowa	1936	Tennessee	1943
Kansas	1957	Texas	1949
Michigan	1937	Washington	1927
Minnesota	1927	Wisconsin	1925

provide certification of ability in the basic sciences as a prerequisite to licensure by the Healing Arts Board.

The subjects in which examinations are conducted are shown in table 33. The subjects are

TABLE 33.—*Subjects Included in Basic Science Examinations*

	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Public Health
Alaska	x	x	x	..	x	x	x	..
Arizona	x	x	x	..	x	x	x	..
Arkansas	x	x	x	..	x	x	x	..
Colorado	x	x	x	..	..	x	x	..
Connecticut	x	..	..	x	x	x	x	..
District of Columbia	x	x	x	..	..	x	x	..
Florida	x	x	x	..	..	x	x	..
Iowa	x	x	x	..	x	x	x	..
Kansas	x	x	x	..	..	x	x	..
Michigan	x	x	x	..	..	x	x	..
Minnesota	x	x	x	..	x	x	x	..
Nebraska	x	x	x	..	x	x	x	..
Nevada	x	x	x	..	..	x	x	..
New Mexico	x	x	x	..	..	x	x	..
Oklahoma	x	x	x	..	..	x	x	..
Oregon	x	x	x	..	x	x	x	..
Rhode Island	x	x	x	..	..	x	x	..
South Dakota	x	x	x	..	..	x	x	..
Tennessee	x	x	x	..	..	x	x	..
Texas	x	x	x	..	x	x	x	x
Washington	x	x	x	..	x	x	x	..
Wisconsin	x	..	..	x	..	x	x	..

specified by statute. The boards have no authority to add any subjects or to refrain from examining in any subject, although in some states provision is made for certification by reciprocity, endorsement, waiver, or exemption. In 1957, the Oregon Board added bacteriology as one of the subjects of the examination, while the new board in Kansas speci-

fies that it will test an applicant in anatomy, bacteriology, chemistry, pathology, and physiology. The credentials acceptable for certification without examination are listed in table 34. The Kansas Board has established no formal reciprocal agreements but will issue a certificate of proficiency on an individual basis to those applicants who meet the requirements of the Kansas law.

The results of examinations given and the number of certificates issued on the basis of reciprocity, endorsement, waiver, or exemption during 1957 are presented in tables 35 and 36. A candidate, in applying for a basic science certificate, is not required by law to reveal his school of practice. No attempt has been made to differentiate the schools of the healing arts represented by the candidates examined or certified. Ten states either had no failures or did not report figures for failures. The percentage of candidates failing is given for those states that did submit these data.

There were 4,866 candidates examined by the 22 boards in operation in 1957, and certificates of pro-

TABLE 34.—*Reciprocity, Endorsement, Waiver, or Exemption Policies of Basic Science Boards*

Alaska

Physicians are accepted on reciprocity from those states with which the board of medical examiners has established reciprocal agreements.

Arizona

A reciprocal certificate issued on the basis of a basic science certificate that has been obtained by an examination before the issuing board and provided that at least four subjects were passed at one sitting unless the state in question examines in fewer than four of the six subjects required by the Arizona law. Reciprocity will be extended to those applicants who were licensed to practice in a state prior to the passage of the basic science law of that state.

Arkansas

Reciprocity on the basis of written examination taken before all states having basic science laws, except Florida and Iowa. The credential of the National Board of Medical Examiners is acceptable for reciprocal registration.

Colorado

Reciprocity as to examination with the following basic science boards: Alaska, Arizona, Arkansas, Michigan, Minnesota, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Texas, and Washington.

Reciprocity as to examination with the Iowa Basic Science Board is granted to those candidates having made original application to the board on or before June 1, 1949. Candidates making application after that date and holding a certificate must meet the minimum requirements, i. e., that the candidate pass an examination in the basic sciences given by the basic science board of Colorado and that he pass, at one sitting, at least four of the five subjects given, with subsequent passing of the fifth subject.

With Connecticut and Wisconsin there is reciprocity as to examination in the subjects of anatomy, physiology, and pathology. Candidates from these states are required to pass the examinations in chemistry and bacteriology.

Connecticut

No reciprocity with other basic science boards. Certification by endorsement obtainable by diplomates of the National Board of Medical Examiners or to candidates holding a license obtained by examination in another state. The latter is acceptable only after three years' professional activity.

District of Columbia

Reciprocity has not been established. The basic science board may exempt an applicant. All applications are considered on an individual basis.

Florida

No reciprocity, waiver, or exemption policies.

Iowa

All applications considered on an individual basis. Will accept other examinations if equally comprehensive to the Iowa examination.

Kansas

No formal reciprocal agreements. On an individual basis, applications for endorsement are considered on the basis of grades received in the basic sciences in examinations given by state boards of medical examiners, basic science certificates from other states or grades received in part I of the examination of the National Board of Medical Examiners. The board may in its discretion waive examination when proof satisfactory to the board is presented that the applicant is of good moral character, has a high school education or equivalent, and has passed an examination in the basic sciences which, in the opinion of the board, meets the requirements of the Kansas law.

Michigan

Certificates issued by examination are accepted for registration by waiver from the basic science boards of Alaska, Arkansas, Colorado, District of Columbia, Iowa, Minnesota, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Texas, Washington, and Wisconsin.

Applicants who present certificates from the Wisconsin Basic Science Board are examined in bacteriology and chemistry.

Applicants who present certificates from the basic science boards of Oregon and Washington are examined in bacteriology.

The Michigan Board may accept, in lieu of its own examination, the basic science portion of the examination given by any legally constituted examining or licensing board in the healing arts, if such examination is equal or equivalent to the examination given by the Michigan Board.

Minnesota

Reciprocity on an automatic basis with the basic science boards of Colorado, Nebraska, Oregon, and Tennessee (after Feb. 9, 1950), and on the basis of having passed part I of the examination of the National Board of Medical Examiners.

Reciprocity on an individual basis with the basic science boards of Alaska, Arizona, Connecticut, Michigan (grades must be 75% or more in each subject), Nevada, New Mexico, Oklahoma, South Dakota, and Texas.

Reciprocity on an individual basis with the medical licensing boards of California, Indiana, Kansas, Kentucky, New York (subsequent to 1925), Oklahoma, Texas, Vermont, Virginia, Washington (grades must be 75% or more in each subject), and West Virginia.

Partial credit granted for grades in certain subjects passed in examinations of medical licensing boards of Alabama, Georgia, Louisiana, North Carolina, Washington, and Wisconsin.

Nebraska

No reciprocal agreements; consideration given on an individual basis. A grade of at least 75% is required in each subject, and application must be made in conjunction with an acceptable application for reciprocal licensure in one of the healing arts.

Nevada

Reciprocity on the basis of written examination with the basic science boards of Arizona, Colorado, Iowa, Minnesota, New Mexico, Oklahoma, Oregon, South Dakota, Tennessee, Texas, and Washington. Waiver with basic science boards of Arkansas, Florida, Michigan, Nebraska, and Wisconsin (partial waiver).

New Mexico

By waiver—for physicians who have been in continuous practice for at least 30 years. By reciprocity for applicants who hold certificates issued by virtue of a written examination from Arizona, Arkansas, Colorado, Michigan, Minnesota, Nevada, Oklahoma, Oregon, South Dakota, Tennessee, and a limited agreement with Iowa, Washington, and Wisconsin.

Oklahoma

Applicants are reviewed on an individual basis. If qualified, will be accepted provided other state extends a like privilege to those holding basic science certificates in Oklahoma. A basic science certificate is not a prerequisite for licensure by reciprocity but is a requirement for licensure by examination.

Oregon

Reciprocity on the basis of written examination with the basic science boards of Arizona, Colorado, Iowa, Michigan, Minnesota, Nebraska, Nevada, New Mexico, Oklahoma, South Dakota, Tennessee, Texas, Washington, and Wisconsin. After March 1, 1958, candidates for reciprocity must present evidence of two years' study of liberal arts or science, if they have received their basic science certificate after that date. Applicants who received their basic science certificate prior to this date need only comply with the regulations for high school graduation.

Rhode Island

Endorsement after oral examination with Massachusetts Board of Registration in Medicine, and basic science boards of Colorado, District of Columbia and Oklahoma.

South Dakota

Reciprocity with the basic science boards of Alaska, Arizona, Arkansas, Colorado, Iowa, Kansas, Michigan, Minnesota, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Tennessee, Texas, Washington, and Wisconsin.

Tennessee

Reciprocity with the basic science boards of Alaska, Arizona, Arkansas, Colorado, District of Columbia, Michigan, Minnesota, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, South Dakota, Texas, and Washington.

Texas

Reciprocity with the basic science boards of Alaska, Arizona, Arkansas, Colorado, Iowa, Michigan, Minnesota, Nebraska, Nevada, Oklahoma, Oregon, South Dakota, Tennessee, Washington, and partial reciprocity with Wisconsin. Applicants from Wisconsin required to take the Texas examination in bacteriology, chemistry, and public health, and hygiene.

Washington

The basic science examination given in Alaska, Arizona, Arkansas, Colorado, District of Columbia, Iowa, Michigan, Minnesota, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Texas, and Wisconsin will be accepted if grade requirements are met. Not all of the above states examine in all of the subjects required by the Washington law. Missing subject or subjects must be completed by examination before the Washington Basic Science Board.

Wisconsin

Waiver to commissioned officers of the armed forces or the Public Health Service, to an applicant who has passed part 1 of the examination of the National Board of Medical Examiners, to a physician licensed to practice medicine in a state not having a basic science law or licensed in a state before the establishment of a basic science board provided he has served an internship or has practiced for at least one year since the license was granted, to a physician licensed in Canada, and to foreign trained physicians holding an M. D. degree from an acceptable school who are licensed to practice medicine in the country in which the school attended is located.

Reciprocity on the basis of written examination with all states having basic science boards.

ficiency were issued to 4,024 individuals after written examination. In addition, as noted in table 36, 2,283 certificates were issued without examination by 17 boards. The number of applicants registered with or without written examination in 1957 was 6,307. Florida issued 871 such certificates,

TABLE 35.—*Applicants Examined in Basic Sciences, 1957*

	Examined	Passed	Failed	% Failed
Alaska	23	21	2	8.7
Arizona	70	70	0*	0.0
Arkansas	618	382	236	38.1
Colorado	153	153	0*	0.0
Connecticut	128	128	0*	0.0
District of Columbia	19	16	3	15.8
Florida	871	871	0*	0.0
Iowa	174	174	0*	0.0
Kansas	38	26	12	31.5
Michigan	575	434	141	24.5
Minnesota	254	254	0*	0.0
Nebraska	205	155	50	24.4
Nevada	82	45	37	45.1
New Mexico	113	113	0*	0.0
Oklahoma	102	102	0*	0.0
Oregon	173	91	82	47.4
Rhode Island	176	148	28	15.9
South Dakota	45	33	12	26.7
Tennessee	169	169	0*	0.0
Texas	201	201	0*	0.0
Washington	205	167	38	18.5
Wisconsin	472	271	201	46.8
Totals	4,866	4,024	842	17.3

* Failure data not reported

Michigan 776, Texas 674, Wisconsin 487, Arkansas 438, and Minnesota 429. Other states certified fewer than 400.

Table 37 records the number of candidates certified by basic science boards since 1927. This table indicates for each year the number of boards in

TABLE 36.—*Basic Science Certificates Issued by Examination, Reciprocity, Endorsement, Exemption, or Waiver, 1957*

	Certified by		
	Examination	Reciprocity, Endorsement, Exemption, or Waiver	Total Certified
Alaska	21	24	45
Arizona	70	93	163
Arkansas	382	56	438
Colorado	153	103	256
Connecticut	128	265	393
District of Columbia	16	100	116
Florida	871	0	871
Iowa	174	68	242
Kansas	26	0	26
Michigan	434	342	776
Minnesota	254	175	429
Nebraska	155	22	177
Nevada	45	19	64
New Mexico	113	47	160
Oklahoma	102	0	102
Oregon	91	118	209
Rhode Island	148	0	148
South Dakota	33	26	59
Tennessee	169	136	305
Texas	201	473	674
Washington	167	0	167
Wisconsin	271	216	487
Totals	4,024	2,283	6,307

operation in a given year, the number of candidates who passed and failed, the number registered without written examination, and the total certified. In this 31-year period, 91,000 certificates have been issued, 62,690 by examination and 28,310 by reciprocity, endorsement, exemption, or waiver. The percentage of failures in the examination was 19.4.

The registration or examination fee in the states requiring basic science certification is given in table 38. In seven instances a higher fee is exacted of those desiring certification without written examination. Examination and endorsement meetings are held in most instances semiannually or coincide

TABLE 37.—*Candidates for Basic Science Certification, 1927-1957*

	No. of Boards	Examination			Reciprocity, Endorsement, Exemption, or Waiver	Total Certified
		Passed	Failed	% Failed		
1927	5	294	33	10.0	27	321
1928	5	617	88	12.4	19	636
1929	7	641	93	12.6	75	716
1930	7	636	127	16.6	122	758
1931	7	634	153	19.4	141	775
1932	7	634	101	13.7	118	752
1933	8	557	104	15.7	131	688
1934	9	751	115	13.3	138	889
1935	10	794	162	16.8	114	908
1936	10	917	181	16.4	243	1,160
1937	12	1,102	242	18.0	202	1,304
1938	12	1,096	230	17.3	293	1,389
1939	14	1,110	249	18.3	1,021	2,131
1940	16	1,293	290	18.3	346	1,639
1941	17	1,751	373	17.5	353	2,104
1942	17	1,725	497	22.3	304	2,029
1943	18	2,309	410	15.1	382	2,691
1944	18	2,144	605	22.0	309	2,453
1945	18	2,339	634	21.3	584	2,923
1946	19	2,558	692	21.2	1,474	4,032
1947	19	2,633	905	25.6	960	3,593
1948	19	3,038	789	20.6	1,418	4,456
1949	20	3,656	1,515	29.5	1,480	5,136
1950	20	3,430	1,340	28.1	2,526	5,956
1951	21	3,198	735	18.7	1,939	5,137
1952	21	3,806	1,346	26.1	1,924	4,730
1953	21	3,854	1,220	24.0	1,899	5,753
1954	21	3,941	874	18.2	1,976	5,917
1955	21	3,474	447	11.1	1,936	5,410
1956	21	3,734	741	16.6	2,373	6,107
1957	22	4,024	842	17.3	2,283	6,307
Totals		62,690	15,133	19.4	28,310	91,000

with the examinations and meetings scheduled by the licensing boards. THE JOURNAL publishes semimonthly the future dates of examination and reciprocity meetings of all basic science boards.

TABLE 38.—*Basic Science Registration Fees*

Alaska	$25	Nebraska	$10[2]
Arizona	20	Nevada	25
Arkansas	20[3]	New Mexico	50
Colorado	25	Oklahoma	15[2]
Connecticut	25	Oregon	25
District of Columbia	25	Rhode Island	10
Florida	10	South Dakota	25
Iowa	10	Tennessee	25
Kansas	10[1]	Texas	15[4]
Michigan	10	Washington	10[4]
Minnesota	25[2]	Wisconsin	10[2]

Fee for registration without examination: (1) $5; (2) $50; (3) $15; (4) $25. (5) First certification no fee; all subsequent examinations $10.

In 1957, there were 4,866 examinations given by basic science boards; 4,024 were successful, and 842 examination results were reported as unsuccessful. Unless permitted reexamination, the latter group does not qualify for consideration for licensure in the healing art in which they are interested. The several basic science boards differ widely from each other in the restrictions put upon the candidate with respect to repetition of examinations that have been failed and the accumulation of credit. Because of these differences, the data in this section are presented in factual form as reported, and no attempt has been made to analyze the data on a comparable basis from state to state.

While the informative data presented may be useful to those seeking licensure in these states, it is recommended that the information be supplemented by direct communication with the basic science board. The present executive corresponding officer of each of the 22 basic science boards is as follows:

Arizona	Mr. Herman E. Bateman, University of Arizona, Tucson.
Arkansas	Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.
Colorado	Dr. Esther B. Starks, 1459 Ogden St., Denver 18.
Connecticut	Mrs. Regina G. Brown, 258 Bradley St., New Haven 10.
District of Columbia	Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington 6.
Florida	Mr. M. W. Emmel, Box 340, Gainesville.
Iowa	Mr. Elmer W. Hertel, Wartburg College, Waverly.
Kansas	Dr. Robert E. Stowell, University of Kansas School of Medicine, Kansas City.
Michigan	Mrs. Anne Baker, 116 Stevens T. Mason Bldg., W. Michigan Ave., Lansing 15.
Minnesota	Dr. Raymond N. Bieter, 165 Millard Hall, University of Minnesota, Minneapolis.
Nebraska	Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.
Nevada	Dr. Donald G. Cooney, Box 9005, University Station, Reno.
New Mexico	Mrs. Marguerite Cantrell, Box 1522, Santa Fe.
Oklahoma	Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.
Oregon	Dr. Earl M. Pallett, State Board of Higher Education, Box 5175, Portland.
Rhode Island	Mr. Thomas B. Casey, 366 State Office Bldg., Providence.
South Dakota	Dr. Gregg M. Evans, 310 E. 15th St., Yankton.
Tennessee	Dr. O. W. Hyman, 62 S. Dunlap St., Memphis.
Texas	Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.
Washington	Mr. Thomas A. Carter, Department of Licenses, Capitol Bldg., Olympia.
Wisconsin	Mr. William H. Barber, 621 Ransom St., Ripon.
Alaska	Dr. R. Harrison Leer, Box 204, Alaska Office Bldg , Juneau.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, founded in 1915, includes in its membership representation from the Federation of State Medical Boards of the United States, the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges, the Armed Services, and the Veterans Administration. Members at large are elected from among leaders in medicine throughout the United States. The purpose of this examining agency is to administer an examination that may be accepted as an adequate qualification for a medical license. The National Board is not a national licensing board. It is the function of the individual states to determine who shall practice within their borders and to maintain high standards of medical practice in accordance with their own rules and regulations.

The certificate of the National Board of Medical Examiners is accepted as an adequate qualification by the medical licensing authorities of the states, the District of Columbia, and the territories with the following exceptions: Arkansas, Florida, Georgia, Indiana, Louisiana, Michigan, North Carolina, and Texas. The Georgia licensing board will accept certificates issued prior to October, 1953. The Michigan licensing board will accept applicants who have completed parts 1 and 2 prior to Nov. 1, 1954, but who require a special written supplemental examination. Supplemental oral examinations are required by the licensing boards of Illinois, Rhode Island, and Wyoming.

The following boards of examiners of the basic sciences accept the examinations of the National Board in lieu of their own: Alaska, Arkansas, Connecticut, Iowa, Kansas, Minnesota, Nebraska, Oklahoma, Tennessee, Wisconsin, and the District of Columbia. Diplomates of the National Board are required to take an examination in the basic sciences before obtaining a medical license in Arizona, Colorado, Florida, Michigan, Nevada, New Mexico, Oregon, Rhode Island, South Dakota, Texas, and Washington.

The examination is divided into three separate parts and may be taken during the course of training in the medical school. Parts 1 and 2 are of the multiple choice type. Each of the six examinations of part 1 and each of the five examinations of part 2 is developed by a separate committee which is appointed by the Board and which is composed of teachers and clinicians prominent in their own fields. All aspects of the testing program, including scoring and statistical analysis, are now carried on in the offices of the National Board. The third, or final, part of the examination provides a total of seven hours for each candidate to demonstrate his ability to apply his knowledge of clinical problems in four major elements of general practice. In each of these subjects time is provided for the candidate to study a patient or clinical specimens. He is then required to write an essay test based on the patient or the clinical specimen that he has studied. His essay paper is then reviewed by separate examiners in each subject. After this, the examiners question the candidate in other aspects of the subject.

Examinations in part 1 were held during 1957 in June and September and in part 2 in April and June. Part 3 of the examination is administered through subsidiary boards located in the major cities of the United States during the last two weeks of June of each year. Where indicated, interim part 3 examinations will be organized by an individual subsidiary board during the course of the year. The dates of all examinations are posted on medical school bulletin boards and published in THE JOURNAL and in "The National Board Examiner," the official publication of the National Board of Medical Examiners.

The National Board admits to its examination students in and graduates of approved medical schools in the United States and Canada. The National Board does not, at the present time, admit to its examination graduates of other medical schools. Upon receipt of a request initiated by a state licensing board, a specialty board, or a medi-

cal school, an individual trained in a foreign medical school may be admitted to the National Board examinations in order to satisfy special requirements or regulations of the licensing board, specialty board, or the medical school. He is not considered a candidate for a certificate but is admitted to the examination as a service to the agency requesting the service and the grades are sent only to the board or school concerned.

TABLE 39.—*National Board Examinations in Part 1, 1922-1957*

Date	Total Examinations	Passed	Incomplete	Failed	% Failed
June, 1957	2,790	1,865	742	189	9.2
September, 1957	1,020	416	569	35	7.7
Totals	3,816	2,281	1,311	244	8.9
1922	388	263	58	67	20.3
1923	507	349	77	81	18.8
1924	591	415	69	107	20.5
1925	608	400	50	158	28.3
1926	625	436	104	85	16.3
1927	702	452	159	91	16.8
1928	843	533	231	79	12.9
1929	1,096	675	331	90	11.8
1930	1,260	801	345	114	12.5
1931	1,277	755	425	97	11.4
1932	1,307	847	371	89	9.5
1933	1,234	782	316	136	14.8
1934	1,241	809	347	85	9.5
1935	1,264	785	410	69	8.1
1936	1,344	858	363	123	12.5
1937	1,435	871	415	149	14.6
1938	1,654	986	508	160	14.0
1939	1,733	1,048	460	225	17.7
1940	1,653	1,069	375	209	16.4
1941	1,640	1,087	346	207	16.0
1942	1,867	1,204	471	192	13.8
1943	2,656	1,441	902	253	14.9
1944	4,229	2,326	1,465	438	15.9
1945	3,865	2,106	1,475	284	11.8
1946	3,148	1,695	1,189	264	13.5
1947	3,514	1,844	1,352	318	14.7
1948	3,807	2,178	1,262	367	14.4
1949	3,832	2,337	1,243	243	9.4
1950	3,678	2,358	986	334	9.0
1951	3,520	2,153	1,038	329	9.3
1952	3,989	2,467	1,147	375	9.4
1953	4,278	2,866	980	432	13.0
1954	3,252	2,286	677	289	11.2
1955	3,196	1,735	1,173	288	14.2
1956	3,475	2,675	510	290	10.8
1957	3,816	2,281	1,311	224	8.9
Totals	78,515	48,173	23,001	7,341	13.2

In the following paragraphs data are presented regarding the examinations conducted and the issuance of certificates by the National Board. This is the 36th annual compilation of these statistics. The board's first examination was given in October, 1916. From that date and up to and including a test given in June, 1921, 11 examinations were given and 268 candidates were certified. Since 1922 the examination has been divided into three parts: part 1, a written examination in six basic science subjects; part 2, a written examination in five major clinical divisions and their component subjects or subdivisions; and part 3, a clinical and practical evaluation of the candidate's ability in observation, in diagnostic acumen, and in the principles of therapy, applicable to the four major elements of general practice, namely, clinical medicine, pediatrics, clinical surgery, and obstetrics and gynecology.

The results of examinations given in parts 1 and 2 during 1957 and for each year since 1922 are recorded in tables 39 and 40. The data shown in these tables represent examinations conducted rather than persons examined, and the figures thus include candidates who fail and are reexamined during the same year and those who may pass parts 1 and 2 in the same year.

In 1957, 3,816 examinations were given in part 1; 2,281 passed, and 224, or 8.9%, failed. There were 1,311 incomplete examinations given. In part 2, 2,151 examinations were held; 2,115 passed, and 18, or 0.8%, failed. Incomplete examinations are seldom given in part 2. There were 18 such examinations given in 1957.

Since 1922 a total of 78,515 examinations have been given in part 1 and 41,903 in part 2. During this period 48,173 passed part 1 and 40,231 part 2.

TABLE 40.—*National Board Examinations in Part 2, 1922-1957*

Date	Total Examinations	Passed	Incomplete	Failed	% Failed
April, 1957	1,936	1,910	12	14	0.7
June, 1957	215	205	6	4	1.9
Totals	2,151	2,115	18	18	0.8
1922	109	90	0	19	17.4
1923	192	170	2	20	10.5
1924	267	227	0	40	15.0
1925	342	309	0	33	9.6
1926	381	334	1	46	12.1
1927	361	314	1	46	12.8
1928	410	371	1	38	9.3
1929	465	399	19	47	10.5
1930	620	543	7	70	11.4
1931	719	630	2	87	12.1
1932	732	674	0	58	7.9
1933	714	651	0	63	8.8
1934	633	583	0	50	7.9
1935	689	620	0	69	10.0
1936	768	716	2	50	6.5
1937	855	808	1	51	6.0
1938	861	815	0	46	5.3
1939	938	884	0	54	5.8
1940	1,028	963	9	56	5.5
1941	1,001	954	1	46	4.6
1942	1,072	1,031	0	41	3.8
1943	1,861	1,806	0	56	3.0
1944	1,405	1,350	0	55	3.9
1945	1,599	1,565	0	34	2.1
1946	1,825	1,782	0	43	2.4
1947	1,641	1,613	0	28	1.7
1948	1,742	1,725	0	17	0.9
1949	1,737	1,691	0	46	2.6
1950	1,863	1,837	0	26	1.3
1951	2,045	2,017	0	28	1.4
1952	2,017	2,001	0	16	0.8
1953	2,200	2,145	1	54	2.4
1954	2,258	2,169	26	63	2.8
1955	2,220	2,181	3	36	1.6
1956	2,182	2,153	3	26	1.2
1957	2,151	2,115	18	18	0.8
Totals	41,903	40,230	97	1,576	3.8

In the 36-year period shown, there have been 7,341 failures in part 1 (13.2%) and 1,576 in part 2 (3.8%).

In 1957, 2,010 tests were given in part 3; 1,998 passed and 12 (0.6%) failed. Results of examinations in part 3 in 1955 and in the 35 preceding years are given in table 41. In 36 years, 36,663 were tested, of whom 35,825 were granted the certificate of the board. The percentage of failures in this final examination in 36 years was 2.3. The 1,998

physicians certified as diplomates in 1957 represented 65 medical schools in the United States, 8 in Canada, and 9 medical schools of other countries. The school and the number of examinees from each are included in table 42.

In 1957, there were 3,027 licenses to practice medicine issued by endorsement of the certificate of the National Board of Medical Examiners by 42 boards, the District of Columbia, Alaska, Canal Zone, Hawaii, and Peurto Rico. The number registered by each of these licensing boards is recorded in table 43. There have been 38,455 licenses issued on the basis of endorsement of the board's certificate by the various states, territories, and outlying possessions since 1915.

TABLE 41.—*National Board Examinations in Part 3, 1922-1957*

Year	Total Examinations	Passed	Failed	% Failed
1922	22	22	0	0.0
1923	82	81	1	1.2
1924	126	120	6	4.8
1925	219	206	13	5.9
1926	255	243	12	4.7
1927	293	272	21	7.2
1928	322	306	16	5.0
1929	352	337	15	4.3
1930	420	401	19	4.5
1931	437	419	18	4.1
1932	550	522	28	5.1
1933	551	526	25	4.5
1934	567	548	19	3.4
1935	598	578	20	3.3
1936	576	547	29	5.0
1937	668	630	38	5.7
1938	706	682	24	3.4
1939	770	729	41	5.3
1940	792	771	21	2.7
1941	910	885	25	2.7
1942	1,054	1,041	13	1.2
1943	1,230	1,213	17	1.4
1944	1,168	1,146	22	1.8
1945	1,245	1,232	13	1.0
1946	1,634	1,613	21	1.2
1947	1,741	1,723	18	1.0
1948	1,715	1,700	15	0.9
1949	1,685	1,674	11	0.6
1950	1,752	1,736	16	0.9
1951	1,738	1,708	30	1.7
1952	2,128	2,036	92	4.3
1953	2,039	1,979	60	2.9
1954	2,133	2,052	81	3.8
1955	2,090	2,077	13	0.6
1956	2,085	2,072	13	0.6
1957	2,010	1,998	12	0.6
Totals	36,603	35,825	838	2.3

A number of medical schools use National Board examinations for their own purposes. In some schools the entire second-year class takes part 1 at the end of the second year; in others part 2 serves as a comprehensive examination at the end of the fourth year; in still other schools both parts 1 and 2 are taken by all students. At the present time there are 35 medical schools in which 25 or more students take National Board examinations. In 29 schools, the National Board examinations are required for the entire class for either part 1 or part 2 or both parts 1 and 2.

The officers of the board are Walter A. Bloedorn, M.D., President; Creighton Barker, M.D., Vice-President; John P. Hubbard, M.D., Executive Secretary and Treasurer; William V. Clemans, Ph.D., Director of Testing Services; Christian J. Lambertsen, M.D., Assistant Secretary; George D. Ludwig, M.D., Assistant Secretary; J. S. Rodman, M.D., Honorary Medical Secretary; and Everett S. Elwood, Consultant on State Board Relations.

The address of the board is 133 S. 36th st., Philadelphia 4.

TABLE 42.—*Diplomates from Individual Medical Schools, 1957*

United States

Medical College of Alabama	1	University of Pennsylvania	32
University of Arkansas	5	Woman's Medical College	13
College of Medical Evangelists	33	University of Pittsburgh	2
Univ. of Southern California	3	University of Tennessee	3
Stanford University	7	Meharry Medical College	1
University of California, L.A.	6	Vanderbilt University	1
University of Colorado	1	University of Texas	2
Yale University	73	Baylor University	1
Georgetown University	104	University of Utah	2
George Washington University	85	University of Vermont	32
Howard University	1	University of Virginia	2
University of Miami	7	Medical College of Virginia	1
Medical College of Georgia	1	University of Washington	3
Chicago Medical School	77	University of Wisconsin	4
Northwestern University	42	Marquette University	4
Stritch School of Medicine	18	University of Puerto Rico	26
Univ. of Chicago Sch. of Med.	40	Total	1,916
University of Illinois	24		
State University of Iowa	10		
University of Kansas	9		
University of Louisville	10		
Tulane University	1		
Johns Hopkins University	8		
University of Maryland	5		
Boston University	66		
Harvard Medical School	121		
Tufts Univ. Med. School	107		
University of Michigan	8		
University of Minnesota	2		
St. Louis University	7		
Washington University	11		
Creighton University	38		
University of Nebraska	4		
Albany Medical College	48		
State Univ. of N.Y., Brooklyn	146		
University of Buffalo	63		
Columbia University	118		
Cornell University	70		
New York Medical College	78		
New York University	135		
University of Rochester	53		
State Univ. of N.Y., Syracuse	69		
Duke University	4		
Western Reserve University	31		
Ohio State University	1		
University of Oregon	10		
Hahnemann, Philadelphia	7		
Jefferson Medical College	9		
Temple University	10		

Canada

University of Manitoba	3
Dalhousie University	2
Queen's University	3
University of Ottawa	6
University of Western Ontario	1
University of Toronto	4
McGill University	50
University of Montreal	1
Total	70

Foreign

University of Leige, Belgium	1
University of Kobenhavns, Denmark	1
University of Frankfurt, Germany	1
University of Rome, Italy	1
University of Leiden, Netherlands	3
University of Philippines	1
University of Bern, Switzerland	2
University of Geneva, Switzerland	1
University of Zurich, Switzerland	1
Total	12

TABLE 43.—*Licenses Granted on the Basis of National Board Certificates, 1957*

Alabama	9	New Hampshire	22
Arizona	16	New Jersey	89
California	585	New Mexico	3
Colorado	26	New York	921
Connecticut	172	North Carolina	2
Delaware	5	North Dakota	2
Dist. Columbia	15	Ohio	92
Georgia	15	Oklahoma	6
Idaho	9	Oregon	18
Illinois	121	Pennsylvania	114
Iowa	16	Rhode Island	26
Kansas	8	South Carolina	4
Kentucky	27	Tennessee	13
Maine	25	Utah	14
Maryland	83	Vermont	23
Massachusetts	249	Virginia	42
Michigan	24	Washington	31
Minnesota	70	West Virginia	17
Mississippi	5	Wisconsin	24
Missouri	22	Wyoming	4
Montana	3	Alaska, Canal Zone,	
Nebraska	1	Hawaii and Puerto Rico	51
Nevada	3		3,027

References

1. J. A. M. A. **164**:419 (May 25) 1957.
2. Forty-eight state boards, the District of Columbia, Alaska, the Canal Zone, Guam, Hawaii, and Puerto Rico.

ORGANIZATION SECTION

A. M. A. SAN FRANCISCO BROADCASTS

For the first time in A. M. A. history, highlights of an annual meeting will be broadcast daily to the general public via television and radio. Programs will be presented next month in San Francisco as a public service by the A. M. A. in cooperation with the Merck, Sharp & Dohme pharmaceutical company over commercial radio station KROW (960 kilocycles) and KQED, educational television Channel 9. A full hour preview of the meeting, entitled "Salute to San Francisco" and featuring interviews and statements of medical leaders, will be telecast at 5:30 p. m. Sunday, June 22. Thereafter, daily through Thursday, summaries of scientific material and other convention news will be telecast from 5:30 to 6 p. m. Radio broadcasts covering the previous day's events as well as planned activities for the coming day will be presented Monday through Friday of convention week from 7:30 to 7:45 a. m. All news items will emanate from the A. M. A. press room in the Palace Hotel, and will be broadcast from the respective studios. Production is being handled by the California Academy of Sciences. Plans call for presenting the material in a manner which will adequately summarize convention happenings for both the general public and physicians attending the sessions. Kinescopes of the television shows will be edited as a one-hour film for later distribution to county and state medical associations.

NEW A. M. A. PUBLICATIONS

A new A. M. A. leaflet entitled "The Fifth Freedom," points out that it is every American's basic right to choose not only where he will live or the church he will attend but also the physician in whom he has the greatest confidence. Free choice and mutual understanding are essential to the formation of a good doctor-patient relationship. This leaflet was distributed in May to state and county medical societies.

"Suggested Guides for Medical Society Committees on Aging" is the title of a booklet being prepared by A. M. A. Committee on Aging for use by state and county medical societies. It contains suggestions on (1) purposes of a medical society committee on aging; (2) membership and format; (3) tenure of members; (4) meetings; and (5) activities. Copies of the pamphlet will be available from the Council on Medical Service.

The new edition of the A. M. A. booklet, "Voluntary Prepayment Medical Benefit Plans," will be available from the Council on Medical Service early in June. In addition to a description of plans having medical society approval, this edition of the brochure will contain data on the growth of such plans and a resumé of new developments in the field.

NEW A. M. A. NEWSPAPER

Publication of a bi-weekly tabloid newspaper to keep American Medical Association members informed of socioeconomic and other nonscientific happenings of special interest to physicians will begin this fall, according to General Manager F. J. L. Blasingame. The 16-page paper will be produced by a staff of experienced journalists centered at headquarters in Chicago. The duties of editor have been assumed by Jim Reed, who comes to the A. M. A. from the executive editorship of the Topeka *Daily Capital*, where he served for eight years. Mr. Reed has worked with the Kansas Medical Society in developing a code to promote a better flow of information between the medical profession and various news media. Last year the Kansas Bar Association honored him "for the most constructive contribution to the science of jurisprudence and administration of justice by a Kansas newspaperman." As editor of the new *A. M. A. News*, Mr. Reed will report directly to Dr. Blasingame and will be responsible for the editorial phases of the tabloid's operation. Production, circulation, and the sale of advertising will be handled from the A. M. A. Business Manager's office.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 58 of the Quarterly Cumulative Index Medicus, covering literature for the last half (July-December) of 1955, has been mailed to subscribers and is now available for purchase from the Order Department of the American Medical Association. Reprints of the list of periodicals and publishers from this volume are also in stock. These sell for 75 cents each. Editing and reproduction of copy for volume 59 is in progress at present.

MEDICAL NEWS

ALABAMA

Plan Research Building for Health Sciences.—Construction has begun on the health sciences research building at the Medical College of Alabama, Birmingham. The building was made possible by the passage of an amendment in the state-wide election Dec. 17 which made funds available to match an award of $1,033,000 of federal monies. In 1948 the annual value of gifts and grants for research and training to the Medical Center was about $30,000. This amount has increased to about $1,000,000 a year. The availability of the research building will permit the expansion of present programs and will stimulate the recruiting of health scientists to the center. The location of the building will be unique in that it will span 7th Avenue on the east side of 19th Street. This will achieve the physical union of all of the major units of the center. The building is expected to be ready for occupancy in the fall of 1959.

CALIFORNIA

Grant for Research at Stanford.—A $2,680,000 endowment to Stanford Medical School has been established through the estate of Mrs. Sophie K. Hall of Los Angeles. The bequest, income from which will support the Lendal M. Gray research fund, named for Mrs. Hall's first husband, is the largest single gift from an individual since the founding grant of Senator and Mrs. Leland Stanford in 1885. The fund is to be used for research in medicine at Stanford.

Hospital News.—The air-conditioned surgical and central service departments in the new wing of the Saint Francis Memorial Hospital have been opened. The new surgical department comprises the entire second floor, and includes four major and six minor surgical rooms and two cystoscopic rooms. The new wing will also house the new Psychiatric Unit, which will supplement the outpatient clinic opened by the hospital the first of the year. Facilities have been provided for a new obstetrical and gynecological department, a new radiological department, and additional clinic services, to be built as soon as funds are available.——Dr. Dwight H. Murray, past-president of the American Medical Association, was the luncheon speaker at the first symposium and convocation of the new Memorial Hospital of Long Beach medical staff May 21 at Seaside Hospital. The new Memorial Hospital building was officially started on May 18, when groundbreaking ceremonies were held, and the symposium was conducted as part of the celebration. Seaside Memorial Hospital will operate the new 400-bed facility.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

DISTRICT OF COLUMBIA

Dr. Hussey Named Dean at Georgetown.—Dr. Hugh H. Hussey Jr., director of the department of medicine, has been appointed dean of the Georgetown University School of Medicine, effective July 1. Dr. Hussey succeeds Dr. Francis M. Forster, who is resigning the post to devote all his time to neurology, but will remain as professor and director of the department of neurology, a position he has held along with the deanship. Dr. Hussey is the medical editor of *GP* and associate editor of *Medical Annals of the District of Columbia*. For 16 years Dr. Hussey was chief of the Georgetown Division at District of Columbia General Hospital.

FLORIDA

Outbreak of Typhoid Fever.—The U. S. Public Health Service's Morbidity and Mortality Weekly Report released May 9, notes that Dr. James O. Bond, Florida State Board of Health, reported during the first week in April, three proven cases of typhoid fever due to *Salmonella typhi*, type E_1, in children 6, 7, and 8 years old in Florida. The three boys were associated at school and at home and gave histories of having been swimming in a small stream that carries untreated sewage from another section of the town. No other potential sources of the disease were discovered in an investigation which included an exhaustive survey for carriers among contacts. The three cases were asymptomatic two weeks after initial treatment with a broad-spectrum antibiotic. There are no carriers of *S. typhi* noted in the records for this area, but a search is being carried out by retrograde investigation of the sewage system.

GEORGIA

Appointment to Cardiovascular Research Chair.—Dr. Elbert P. Tuttle Jr. has been named to the chair of cardiovascular research in the Emory University School of Medicine, Atlanta, where he has been an assistant professor of medicine since July, 1957. Appointed Research and Clinical Fellow in Medicine at Harvard in 1953, he was made assist-

ant in medicine in charge of the renal physiology laboratory in 1955 and during this period, he was also a research fellow for the National Heart Institute. Dr. Tuttle's investigations for the next several years will be devoted to the relation between high blood pressure, the excretion of salt by the kidney, and the output of the heart. The Georgia Heart Association provides partial support for the position in cardiovascular research.

ILLINOIS

Seminars in Psychiatry.—The last two seminars in the present series on "Modern Concepts in Psychiatry" held at the Veterans Administration Hospital, Downey, are as follows:

June 18—"The Question of Manic Depressive Psychoses." Lecturer: Dr. Donald W. Hastings, department of psychiatry and neurology, The Medical School, University of Minnesota, Minneapolis.

June 25—"Psychopharmacology I and II." Lecturer: Dr. Lester H. Rudy, superintendent, Research Hospital, Galesburg, Ill.

For information write Dr. Arpad Pauncz, Assistant Director, Professional Services for Research and Education, Veterans Administration Hospital, Downey, Ill.

Chicago

Award of Dermatology Fellowship.—The 1958 Toni–Gillette fellowship in dermatology at Northwestern University Medical School has been awarded to Dr. Fred Levit, of Chicago, a second-year resident. Dr. Levit who was selected by the fellowship committee will conduct research under the direction of Dr. Herbert Rattner, chairman of the dermatology department. Last year, Dr. Levit was engaged in dermatology work at the Veteran's Administration Research Hospital, prior to which he was in general practice. The fellowship, which is renewable for one year at the discretion of the school, was established in 1957 by the Toni Company. It provides that the nominee receive $2,500 if married, $2,000 if single, and an additional $1,500 goes to the university to defray tuition and departmental overhead expenses.

Physicians Honored for Hospital Service.—Ten physicians with a total of 491 years on the staff of Englewood Hospital received scrolls honoring them for "diligent and humane service" at the annual staff banquet. A scroll was to have been presented to Dr. Charles R. Benner, 78, who died April 29. The hospital began in two rooms in 1894 with four beds and today has 160 beds and facilities for 34 babies. Six physicians received their scrolls at the banquet: William L. Gregg (47 years with the hospital); Charles S. Salmon (50 years); Carleton S. Myers (55 years); Ira E. Greenburg (48 years); Simon H. Ash (40 years); and Nathaniel I. Baskind (45 years). Four were honored in absentia: Meyer Solomon (49 years); August C. King (44 years); John K. McQuarrie of Palos Park (63 years); and Frank M. Phifer, Kankakee (50 years). Dr. McQuarrie, who has the longest term of service of any staff member, and who took his first patient to the hospital in 1895, is still active in hospital affairs.

IOWA

Memorial to Dr. Downing.—The dedication of the Dr. James A. Downing Memorial Room at Raymond Blank Hospital for Children, in Des Moines, was held April 14. The room, which will be used as an eye, ear, nose and throat examination and treatment center, was equipped by the Raymond Blank Guild from funds contributed in memory of the late Dr. Downing. Dr. Charlotte Fisk, of the hospital's pediatric staff, and Dr. Lee Forrest Hill, chief pediatrician, made the presentation, and Mr. Donald W. Cortes, the administrator, accepted the gift on behalf of the hospital. Dr. Downing died in December, 1956. He was on the teaching staff, Iowa Methodist Hospital, and chief of the department of otolaryngology from the time of its creation.

Study of Blood in South Africa.—Dr. Joseph A. Buckwalter, associate professor of surgery, State University of Iowa, left recently to conduct a study of the relationship of blood types to various diseases among four racial groups in the Union of South Africa, which will be supported by a grant from the National Institute of Arthritis and Metabolic Diseases of the U. S. Public Health Service. Begun in May to continue for four months, the study will be an extension of a program which a team of scientists has conducted at the university since 1955. Chief collaborators with Dr. Buckwalter have been Dr. Robert T. Tidrick, professor and head of surgery, and Prof. Lloyd A. Knowler, chairman of mathematics. The aim of the investigation is to determine whether any significant relationship exists between the frequency of certain kinds of cancer and other diseases. With the collaboration of Dr. Allan E. Kark, professor of surgery, University of Natal, Dr. Buckwalter will gather information from the four racial groups. The study also has received financial support from the Iowa Division, American Cancer Society, and two pharmaceutical companies which provide materials.

MARYLAND

State Medical Election.—The Medical and Chirurgical Faculty of the State of Maryland has announced that the following were elected to take office after the next annual meeting in April, 1959: president, Dr. Leslie E. Daugherty, Cumberland; vice-presidents, Dr. Robert W. Farr, Chestertown, Dr. Page C. Jett, Prince Frederick, Dr. Samuel

Morrison, Baltimore; secretary, Dr. William C. Ebeling, Baltimore; and treasurer, Dr. Wetherbee Fort, Baltimore.

Annual Diabetes Award.—Dr. James B. Field, of the National Institute of Arthritis and Metabolic Diseases, Bethesda, will be presented with the 1958 (second) Lilly Award at the 18th annual meeting of the American Diabetes Association June 21-22, in San Francisco. The annual award, supported by Eli Lilly and Company, consists of $1,000 and a medal. Its purpose is to recognize demonstrated research in the field of diabetes. Dr. Field is currently engaged in postdoctoral studies in London, England.

Personal.—Dr. Caroline A. Chandler, assistant professor of pediatrics, Johns Hopkins University School of Medicine, Baltimore, has been appointed chief of the Division of Maternal and Child Health of the State Health Department.—Dr. James A. Shannon, director, National Institutes of Health, Bethesda, received the New York University College of Medicine Alumni Association 1958 scientific award for "outstanding achievements in the fields of renal physiology, malarial control and national administration of medical research." He was principal speaker on Alumni Day, Feb. 22.—Dr. Harry Eagle, chief, Section on Experimental Therapeutics, National Institute of Allergy and Infectious Diseases, Bethesda, gave the 11th annual Jack H. Tritt Memorial Lecture at Jewish Hospital, St. Louis, March 4, on "Amino Acid Metabolism in Tissue Culture."

MICHIGAN

Lectureship to Honor Dr. Selby.—The St. Clair County Medical Society has established an annual lectureship in honor of Dr. Clarence D. Selby, of Port Huron. Dr. Selby, who retired as secretary of the medical society, was honored by the group at a dinner recently. He has acted as medical consultant to General Motors Corp., was active in industrial health work with the U. S. Public Health Service, and has served as president of the Ohio State Medical Association and president of the American Association of Industrial Physicians (now known as the Industrial Medical Association). Dr. Selby has received the William S. Knudsen award, the distinguished service citation from the A. M. A. (1954), and the Michigan State Medical Society award (1951).

Japanese Honor Two Wayne Surgeons.—Two Detroit physicians were among three honored by the Japanese Surgical Society meeting in Fukuoka recently. For the first time in its history the Japanese Surgical Society invited foreign guests to its annual meeting, April 23-25. The three so honored were Drs. Charles G. Johnston and Grover C. Penberthy, of the Wayne State University surgical department, and Geheimrat Prof. Dr. Robert Warnke, of the Medical Faculty of Kiel, Germany. Dr. Johnston, head of the surgical department, presented a paper before the Japanese society on the "Solution of Gallstones." During the remainder of his visit, he will serve as consultant at Keio University (Tokyo) on the residency training program there. Drs. Johnston and Penberthy sailed from Los Angeles, April 7, arrived in Yokohama, April 21, and are expected back in the United States early in June.

MISSISSIPPI

Dr. Underwood to Retire.—The evening of June 23 has been set for an appreciation dinner for Dr. Felix J. Underwood, who will retire June 30, after over 40 years of public health service in his native state. His friends are invited to this event, sponsored by public health workers of Mississippi. Clayton Rand, nationally known writer, will be the featured speaker for the occasion. Dr. Norris C. Knight, director, Division of Health Education, is general chairman of the committee-in-charge. The dinner will be at 6:30 p. m. in the Victory Room of the Heidelberg Hotel, Jackson. Reservations may be made by sending a check payable to "Felix J. Underwood Appreciation Dinner" ($4 per person) to Miss Cleta Brinson, Box 1700, Jackson, Miss.

MONTANA

Anesthesiologists Organize.—On April 18, Montana anesthesiologists organized the Montana Society of Anesthesiologists. Dr. Richard B. Griffing, Great Falls, was named president; Dr. Leonard E. Kuffel, Missoula, vice-president; and Dr. Warren R. Rupper, Billings, secretary-treasurer.

OHIO

Surgical Meeting in Cincinnati.—The fifth annual scientific meeting of the Ohio State Surgical Association will be held June 4-5 at the Netherland Hilton Hotel, Cincinnati. A panel discussion, "Surgery of the Patient with Jaundice," will be moderated by Dr. Max M. Zinninger, Cincinnati. The program includes the following topics by out-of-state speakers:

Angioplastic Procedures in the Management of Peripheral Occlusive Arterial Disease, Dr. D. Emerick Szilagyi, Detroit.

Carcinoma of the Cervix—Present Concepts of Early Diagnosis and Therapy, Dr. Richard W. Te Linde, Baltimore.

Pitfalls in Treatment of Ankle Injuries, Dr. Harrison L. McLaughlin, New York City.

Trends in the Management of Cancer of the Colon and Rectum, Dr. Henry K. Ransom, Ann Arbor, Mich.

Surgical Treatment for Peptic Ulcer, Dr. Ralph F. Bowers, Memphis, Tenn.

Chronic Pancreatitis with Special Reference to Caudal Pancreaticojejunostomy, Dr. Charles B. Puestow, Chicago.

Entertainment includes golf, tennis, swimming, a dinner-dance, and a ladies' program. For information write Dr. Clyde S. Roof, 5 W. 4th St., Cincinnati 2.

OREGON

Plague in a Ground Squirrel.—The U. S. Public Health Service's Morbidity and Mortality Weekly Report released May 9 notes that F. M. Prince, San Francisco Field Station, Public Health Service, has reported that *Pasteurella pestis* was isolated from specimen 1243-A, a ground squirrel, found dead April 11 on a ranch located 15 miles ease of Klamath Falls, Ore.

SOUTH CAROLINA

Narcotics Violation.—The Bureau of Narcotics, Treasury Department, has reported that "Dr. Oliver W. Williamson [of Wagener] pleaded guilty in the United States District Court at Charlotte, North Carolina, to a violation of USC Title 18, Section 371, and on April 11, 1958, his sentence of three years was suspended and he was placed on probation for a period of five years, and fined $10,000."

WYOMING

Annual State Meeting in Moran.—The 55th annual meeting of the Wyoming State Medical Society will be held June 11-14 at Jackson Lake Lodge, Moran. Two morning panel discussions (June 12 and 14) are planned on "Cancer" and "Combined Orthopedic Pediatric Problems," moderated by Drs. Joseph E. Hoadley and Lawrence J. Cohen, respectively, and with Dr. Clare C. Wiley, president, Colorado State Medical Society, presiding at the June 14 session. The following guest speakers are listed: Col. Levi M. Browning, M.C., U.S.A.F., Denver; Dr. Charles H. Flint, Thermopolis; Dr. David A. Karnofsky and Dr. Samuel W. Moore, New York City; Dr. Ralph V. Platou and Dr. Jack K. Wickstrom, New Orleans; and Dr. Richard L. Sutton Jr., Kansas City, Mo. Question-and-answer periods will be held. Exhibits and a ladies' program are planned and a dinner-dance will be held June 13, 6:30 p.m. Registration fee is $20. For information write Mr. Arthur Abbey, Executive Secretary, Wyoming State Medical Society, Box 2036, Cheyenne, Wyo.

GENERAL

National Youth Fitness Week.—A proclamation by the President of the United States of America concerning National Youth Fitness Week reads as follows:

> WHEREAS the youth of our Nation constitutes one of our most valuable assets; and
> WHEREAS the scientific and technological advances of recent years have eased the problems and hardships of everyday living and have lessened the need for physical activity on the part of our young people, with a consequent adverse effect on the health of our Nation; and
> WHEREAS the Chairman of the President's Council on Youth Fitness, established in July 1956 to stimulate existing programs and to initiate other measures tending to enhance the fitness of American youth, has recommended that the week beginning June 1, 1958, be designated as National Youth Fitness Week; and
> WHEREAS the fitness of our young people can be promoted through the determined and constant effort of all our citizens, both young and old:
> NOW, THEREFORE, I, DWIGHT D. EISENHOWER, President of the United States of America, do hereby proclaim the week beginning June 1, 1958, as National Youth Fitness Week.
> I request officials of the Government, and I urge American parents, . . . and civic groups, to use all appropriate means during that week to promote programs and activities which will better the mental, social, spiritual, and physical fitness of the youth of America to the end that we may assure the continuing strength and well-being of our Nation.

Staphylococcal Food Poisoning.—The U. S. Public Health Service's Morbidity and Mortality Weekly Report released May 9 notes that Dr. Dean H. Fisher, Maine Department of Health and Welfare has reported an outbreak of staphylococcal food poisoning in five persons after eating cream pies. Symptoms developed in from two to four hours. Conditions at the bakery were unsanitary. The pies were not refrigerated. Several samples of cream pies showed *Staphylococcus aureus*. Nose and throat cultures from several of the food handlers showed *Staph. aureus* and other pathogens.

The California State Department of Health has reported staphylococcal food poisoning in five persons who became ill with nausea, vomiting and diarrhea three to six hours after eating barbecued ham. Symptoms lasted about 12 hours. The canned ham remained in the can under refrigeration until it was barbecued, then in about an hour, it was wrapped in aluminum foil and left out of refrigeration for four hours. The ham was then refrigerated for 20 hours and after another 2½ hours without refrigeration it was eaten. A sample of ham produced a plate count of 7×10^6 colonies per gram of pathogenic staphylococci.

Dr. Corner Wins Passano Foundation Award.—The board of directors of the Passano Foundation has announced that Dr. George W. Corner, of the Rockefeller Institute for Medical Research, has been selected as the recipient of the $5,000 Passano Foundation award for 1958. On June 25, during the convention of the American Medical Association in San Francisco, a reception and dinner will be held at the St. Francis Hotel to honor Dr. Corner. Dr. Gunnar Gundersen, incoming President of the American Medical Association, will speak on the Contribution of Fundamental Research to Clinical Medicine. Dr. Herbert M. Evans, a former award winner, will appraise Dr. Corner's contribution to science. This year's award is presented to Dr.

Corner "for his long and continuing researches and their many fruitful contributions to the better understanding of mammalian anatomy and physiology, with particular emphasis on human reproduction." From 1940 until his retirement in 1955, Dr. Corner was director of the department of embryology at the Carnegie Institution, New York City. The Passano Foundation was formed late in 1943, to encourage medical science and research, particularly that having a clinical application. It is sustained by annual contributions from The Williams and Wilkins Company, publishers of medical and scientific books.

Section Meeting of Insurance Physicians.—The Medical Section of the American Life Convention, an association of legal reserve life insurance companies of the U. S. and Canada, will hold its 46th annual meeting at the Broadmoor, Colorado Springs, Colo., June 9-11. Panel discussions under the general heading "What Would You Do?" will consider the following: respiratory system, endocrine system, cardiovascular system, and the neurological system. The following papers are scheduled:

Are We Facing our Responsibilities as Medical Directors?, Dr. John E. Boland, Chicago.
Coronary Occlusion and Chest Pain, Dr. Harry A. Cochran Jr., Fort Wayne, Ind.
Are You Meeting Your Responsibility in the Field of Accident and Health Insurance?, Mr. E. J. Faulkner, president, Woodmen Accident and Life Company, Lincoln, Neb.
Allergies, Dr. John M. Sheldon, Ann Arbor, Mich.
Cardiovascular Disease, Dr. Edgar V. Allen and Dr. Robert L. Parker, Rochester, Minn.

Dr. Ernest B. Howard, assistant general manager, A. M. A., and Dr. Norman J. Barker, president, The Association of Life Insurance Medical Directors of America, will present addresses at the opening session. Facilities for golf, swimming, and tours are available, and a ladies' program is arranged. For information write the American Life Convention, 230 N. Michigan Ave., Chicago 1.

American Surgeons Meeting in Stockholm.—The final 1958 sectional meeting of the American College of Surgeons will be held for the first time in Stockholm, Sweden, July 2-7. The Swedish Surgical Society will be host to the meeting; headquarters will be Concert Hall. Visitors from America may arrange for travel accommodations by air or aboard the S. S. Statendam, sailing from New York City June 20, for a cruise which will stop for clinical visits at Oslo and Gothenburg en route to Stockholm, also holding some sessions aboard ship. Dr. Oscar O. Schuberth, Stockholm, associate professor surgery, Karolinska Institutet, is chairman of the advisory committee on local arrangements. The program will include hospital demonstrations, clinics, medical motion pictures, and panel discussions, symposiums, and scientific papers in general surgery and the specialties of orthopedic surgery, obstetrics and gynecology, ophthalmology, otolaryngology, and urology. Dr. H. Prather Saunders, Associate Director, American College of Surgeons, 40 E. Erie St., Chicago 11, is in charge of the sectional meeting program for the college.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	May 3, 1958: Paralytic Type	May 3, 1958: Total Cases	May 4, 1957 Total
New England States			
Maine	..	..	..
New Hampshire	..	..	..
Vermont	..	..	..
Massachusetts	..	..	..
Rhode Island	..	..	..
Connecticut	..	..	..
Middle Atlantic States			
New York	..	1	..
New Jersey	..	..	..
Pennsylvania	..	..	..
East North Central States			
Ohio	..	1	1
Indiana	..	..	1
Illinois	..	..	2
Michigan	..	..	..
Wisconsin	..	1	1
West North Central States			
Minnesota	..	..	..
Iowa	..	2	..
Missouri	..	..	..
North Dakota	..	1	..
South Dakota	..	..	..
Nebraska	..	..	..
Kansas	..	..	1
South Atlantic States			
Delaware	..	..	..
Maryland	..	..	..
District of Columbia	..	..	..
Virginia	..	..	..
West Virginia	..	2	..
North Carolina	..	..	1
South Carolina	..	..	..
Georgia	..	..	..
Florida	..	2	..
East South Central States			
Kentucky	1	1	..
Tennessee	..	..	1
Alabama	..	..	..
Mississippi	..	..	..
West South Central States			
Arkansas	..	..	..
Louisiana	..	..	2
Oklahoma	1	1	..
Texas	5	6	15
Mountain States			
Montana	..	..	1
Idaho	..	..	..
Wyoming	..	..	..
Colorado	..	..	..
New Mexico	..	..	..
Arizona	..	..	2
Utah	..	..	1
Nevada	..	..	..
Pacific States			
Washington	..	..	..
Oregon	..	..	..
California	..	1	8
Territories and Possessions			
Alaska	1	1	..
Hawaii	..	..	..
Puerto Rico	1	1	..
Total	9	21	37

Awards for Research in Aging.—The trustees of the Ciba Foundation have announced the fifth and final annual awards for 1959 for experimental research into problems of aging. Candidates should note:

(a) Not less than five awards, of an average value of £300 each, are available for 1959. The announcement of awards will be made in August, 1959.
(b) Entries must be received not later than Jan. 10, 1959.
(c) Entries will be judged by an international panel which will advise the executive council of the foundation on their findings and will also have power to recommend variation in the size and number of the awards according to the standard of entries. The decisions of the executive council will be final.
(d) Preference will be given to younger workers.
(e) Papers may be in the candidate's own language, papers should not be more than 7,000 words in length, and in all cases a summary in English not exceeding in words 3% of the length of the paper must be attached. If possible, 10 copies of reprints in English should be provided.
(f) Where there is one or more co-author, the name of the leading author should be indicated; it is to him that the award will normally be made.

For copies of regulations and applications write Dr. Gordon E. W. Wolstenholme, Director, and Secretary to the Executive Council, Ciba Foundation, 41 Portland Place, London, W.1., England.

Dermatologists Meeting in Idaho.—The 78th annual meeting of the American Dermatological Association, Inc., will be held June 4-7 at the Challenger Inn, Sun Valley, Idaho. The presidential address, "Dermatology's Debt to Dermato-Histopathology," will be presented by Dr. Clark W. Finnerud to open the scientific session. As part of the report of the Research Aid Committee of the association, Dr. Thomas B. Fitzpatrick will present "The Nature of Hair Pigment." Twenty-five papers are scheduled with discussions to follow, including "Smooth Muscle Tumors of the Skin," by Dr. Hamilton Montgomery, vice-president of the association. The presidents' party will be held June 4, 6:30 p.m. For information write The American Dermatological Association, Inc., Dr. Jasper L. Callaway, Secretary, Duke Hospital, Durham, N. C.

Courses for Prosthetic Technicians.—Two 9-month training courses, for orthopedic and prosthetic technicians, will be offered jointly by the Institute for the Crippled and Disabled, the Presbyterian Hospital in the City of New York, and Columbia University, New York City. The courses will begin Sept. 8, 1958 and end June 27, 1959. Candidates are being accepted from all parts of the world in an effort to meet the international shortage of qualified brace- and limb-making technicians. Persons accepted for the courses will train at the institute, a rehabilitation center at 23rd Street and First Avenue in New York City. Academic instruction and practical experience in the making of braces and artificial limbs, and in working with patients, will take place. Time will be spent in clinical field training at leading hospitals and other institutions. The curriculums for the two courses has been prepared by the combined physical medicine and rehabilitation staffs of the institute, Columbia University, and the Presbyterian Hospital on the basis of two previous pilot courses. The courses will be conducted under the supervision of Charles R. Goldstine, C.P.O., director of the institute's Prosthetic and Orthopedic Laboratories. Application forms may be obtained from the Institute for the Crippled and Disabled, 23rd Street at First Avenue, New York 10.

Postgraduate Cruise to Hawaii.—The University of Southern California School of Medicine has invited advance registrations for a postgraduate refresher course which it is to offer in Hawaii and on board the S.S. Matsonia from Aug. 5-21. Classes will take up the mornings from 9:00 until noon. Afternoons, evenings, and weekends will be free. Several programs will be offered simultaneously. In addition to lectures and case presentations, workshops in EKG interpretation, orthopedics, water and electrolyte balance, and liver disease will be held. Tuition is $125. For information, write the Postgraduate Division, USC School of Medicine, 2025 Zonal Ave., Los Angeles 33.

Eastern Psychiatric Meeting.—The 14th scientific meeting of the Eastern Psychiatric Research Association will be held June 5, 8 p.m., at the Alumni Hall, New York City. "The Suicidal Risk in the Municipal General Hospital" will be presented by Drs. Jacob H. Friedman and Remo Cancellieri, with discussion by Dr. Louis Wender. Dr. Eugene Revitch will give "Psychomotor Paroxysms of Non-Epileptic Origin" after which an open discussion on "Is Marsilid A Dangerous Drug?" will be held. For information write the Eastern Psychiatric Research Association, c/o Dr. David J. Impastato, 40 Fifth Ave., New York City.

Announce Nutrition Fellowship.—The National Vitamin Foundation invites individuals holding doctorate degrees in medicine or one of the biological sciences, interested in continuing training in nutrition, to become candidates for a National Vitamin Foundation—Russell M. Wilder Fellowship. This fellowship was created by the foundation to honor Dr. Russell M. Wilder, of the emeritus staff of the Mayo Clinic, for his more than 40 years of service and contributions to medicine and public health. The fellowship is for three years and pays the recipient $4,500 the first year, $5,000 the second, and $5,500 the third year. It becomes effective July or September, 1959. Applications may be obtained from the offices of the National Vitamin Foundation at 149 E. 78th Street, New York 21. Candidates

must mail their completed applications to the foundation before Sept. 1. Applications must be accompanied by a letter from the executive officer of the institution where the work is to be done and by a letter from the head of the department under which the candidate is to work, attesting to the fact that the candidate will be permitted and encouraged to carry on his work and studies in the institution and department indicated. The candidate must outline a program of study which must be approved by his preceptor. The candidate must give reasonable assurance that he will complete his fellowship and continue to work in the field of metabolism and nutrition.

Congress on Radiation Research.—An International Congress of Radiation Research will be held at the University of Vermont, Burlington, Aug. 10-16 under the joint sponsorship of the National Academy of Sciences–National Research Council and the Radiation Research Society in cooperation with the European Committee on Radiobiology. The congress is being organized "to provide an international forum for an interdisciplinary attack on the broad area of radiation research." Under the chairmanship of the congress president, Dr. Alexander Hollaender, of Oak Ridge National Laboratory, the following symposiums are scheduled:

Aug. 12—Role of Oxygen and Peroxides in Radiation Chemistry: Analysis and Correlation of Various Radiobiological Actions on the Same Cell Species (Yeast).
Aug. 13—Free Radicals Produced by Irradiation.
Aug. 14—Late Effects of Irradiation in Mammals.
Aug. 15—Induced Changes in DNA and in Chromosome Structure.

Information concerning the presentation of papers, registration, and housing may be obtained from Harvey M. Patt, Ph.D., Secretary General, International Congress of Radiation Research, Argonne National Laboratory, Post Office Box 299, Lemont, Ill.

Society News.—At the 40th annual meeting of the **American Radium Society** the following officers were elected: president, Dr. Milford D. Schulz, Boston; president-elect. Dr. Theodore R. Miller, New York City; secretary, Dr. Robert L. Brown, Atlanta, Ga.; treasurer, Dr. Jesshill Love, Louisville, Ky.; first vice-president, Dr. Theodore P. Eberhard, Ann Arbor, Mich.; second vice-president, Dr. James F. Nolan, Los Angeles. The following are dates and sites for future meetings of the society: 1959: Hot Springs, Va., The Homestead, April 6-8; 1960: San Juan, Puerto Rico, March 17-19; 1961: Colorado Springs, Colo., The Broadmoor, May 11-13.——At its annual meeting in March, the **Aero Medical Association** installed the following officers: president, Brig. Gen. Major S. White, M.C., U. S. A. F.; president-elect, Dr. Ludwig Lederer, medical director, Capital Airlines; first vice-president, Dr. George J. Kidera, medical director, United Air Lines; and vice-presidents, air vice-marshal Chua Punsoni, surgeon general, Royal Thailand Air Force; Dr. Birger Hannisdahl, Oslo, Norway; Dr. Earle G. Wight, medical director, Canadian Pacific Airlines; and Dr. Thrift G. Hanks, director of health and safety, Boeing Airplane Company, Seattle.——The new officers of the **American Academy of General Practice** are: Drs. Holland T. Jackson, Fort Worth, Texas, president; Charles C. Cooper, St. Paul, Minn., vice-president; Fount Richardson, Fayetteville, Ark., president-elect; Albert E. Ritt, St. Paul, Minn., treasurer; and Mac F. Cahal, J. D., Volker Boulevard at Brookside, Kansas City, Mo., executive director.

Six Physicians to Receive Travel Awards.—Six physicians from the United States and abroad have been named as recipients of Purdue Frederick Medical Achievement Travel Awards "for outstanding medical and scientific activities." The awards will enable the winners to attend medical meetings of their choice here and in Europe. The announcement was made by the International Council for Health and Travel, a panel of medical specialists who administer the awards on behalf of The Purdue Frederick Company, pharmaceutical firm. Two of the award winners are from the U. S., both of the University of Minnesota: Dr. C. Walton Lillehei, of the School of Medicine, and Dr. Edgar V. Allen, professor of medicine, Mayo Foundation Graduate School. The winners from abroad will visit medical research and teaching centers and hospitals here and attend symposiums during April and May. Scheduled to participate in the Fifth International Congress on Internal Medicine in Philadelphia are: Dr. Robert B. Hunter, M.B.E., department of pharmacology and therapeutics, Queens College, Dundee, Scotland; and Dr. Haqvin Malmros, director, department of medicine, University of Lund, Sweden. Recipients planning to attend the World Congress of Gastroenterology in Washington, D. C. are: Dr. E. C. Faust, department of medicine, University of Valle, Cali, Colombia; and Dr. Andre Charbonnier, Paris, of the French National Society of Gastroenterology. These six awards are presented for the first half of 1958. Plans are for this program to continue, with awards presented on a once-a-month basis.

Mental Hospital Aides Cited.—"For their kindness, skill and patience in caring for patients," 126 ward attendants were selected in mental hospitals throughout the U. S. for citations by the National Association for Mental Health. Each winner has received an NAMH gold pin and a certificate of achievement. The recipients, 70 women and 56 men, represent 126 mental hospitals in 39 states and

the District of Columbia with a total enrollment of 323,297 patients. They were nominated from among 52,932 psychiatric aides by their co-workers, patients, and visitors. Final selections were made by local committees representing hospital staffs and boards.

Report Increase in Syphilis Cases.—The American Social Hygiene Association has reported that the total number of reported cases of syphilis in all stages has risen in the United States for the second consecutive year. During 1957, there were 135,542 cases of syphilis reported as compared with 126,219 in 1956 and 122,075 in 1955. This fact was revealed in the fifth annual joint statement, "Today's VD Control Problem," based on a nationwide survey conducted jointly by the American Social Hygiene Association, the Association of State and Territorial Health Officers, and the American Venereal Disease Association. The information was compiled from individual reports of health departments of all 48 states, 3 U. S. territories, 95 out of the 107 cities in the U. S. with populations of 100,000 or more, and the District of Columbia. The 1957 increase in syphilis cases results primarily from an increase in late and latent syphilis, of which 100,514 cases were reported—the highest number since 1952. Gonorrhea continues its downward trend to 216,476 cases reported in 1957, as against 233,333 in 1956 and 239,787 in 1955. Although 14 states and 19 cities noted a rise in VD in the 11-19 age group, 29 states and 49 cities observed no change in teenage statistics. One state, one territory, and six cities noted a decline in teenage VD. Four states and 23 cities either had no data available for this age group or their comments indicated no particular trend. Thirty-two states, 1 territory and 9 cities report inadequate coverage in a total of 137 areas with a combined population of about 20 million. To meet current problems, the joint statement recommends an increase in federal appropriations, a VD education program, intensive research in gonorrhea, enlistment of the private physician as an active participant in the VD control program, and incorporation of cluster-testing techniques into routine VD control programs.

FOREIGN

Meeting of German Orthopedic Society.—The 46th meeting of the German Orthopedic Society will be held Sept. 9-12 in Tübingen. On Sept. 9 the following subjects will be discussed: Problems of Aging from (1) the Viewpoint of the Pathologist, (2) the Viewpoint of the Internist, and (3) the Viewpoint of Orthopedics. The official opening address will be on the "Psychology of the Different Ages." Other subjects will be "The Structure and Aging Changes of the Vertebral Column," "The Importance of the Sliding Tissues for the Function of the Joints," "Dangers and Mistakes in Osteosynthesis," "Sudeck's Syndrome, Its Etiology, Prophylaxis and Therapy," and "Advantages and Disadvantages of Orthopedic Apparatus." The chairman of the German Orthopedic Society for 1957/1958 is Prof. Dr. Lothar Kreuz, Universitatsklinik, Tübingen, Germany.

Meeting on Military Medicine in Belgium.—The 20th meeting of the International Office of Documentation on Military Medicine will be held in Liège and Brussels June 8-15. A meeting organized by the National Association of Officers of the Medical Reserve Corps of Belgium (June 8) will be concerned with the role of health services in the atomic era, and a meeting on military medicine and pharmacology (June 9-12) will consider the following:

(1) The Control, Application, and Diffusion of the Humanitarian Conventions.
(2) The Recruitment and Training of Military Physicians.
(3) Health Services in Subversive War.
(4) Nuclear Radiations and Their Incidence on Tumors.
(5) Present Status and Treatments by Means of Antibiotics in War Surgery.

On June 12 a symposium on the emergency treatments of large numbers of injured will be organized by the Belgian Society of Military Medicine and Pharmacy in Brussels. An exhibit on medical-surgical and pharmaceutical products will be held during the Liège meeting.

Rehabilitation Conference in Australia.—A Pan-Pacific Conference on Rehabilitation will be held in Sydney, Australia, Nov. 10-14, Donald V. Wilson, LL.D., secretary-general of the International Society for the Welfare of Cripples, has announced. The forum is being co-sponsored by the ISWC and its national affiliate, the Australian Advisory Council for the Physically Handicapped, with the participation of the New Zealand Society for Crippled Children. The meeting, to be developed around the theme "Widening Opportunities for Rehabilitation around the Pacific," will seek to bring together professional and lay persons interested in the expansion of rehabilitation services. The program will deal primarily with fundamentals of training and teamwork for the disabled, stressing the social and vocational aspects of the rehabilitative process, as well as the implications of increased inter-regional cooperation in this field. Invitations to take part in the conference will be extended to ISWC working groups and other related professional organizations in all Pacific and Southeast Asian nations. The International Conference on Social Work will be meeting in Tokyo Nov. 30—Dec. 6. A Conference Organizing Committee of prominent Australians includes Sir Kenneth Coles, president of the international society. Information about the program, registration fees, and hotel accommodations may be obtained from Miss Jean H. Garside, Pan-Pacific Conference, 136 Chalmers St., Sydney, Australia.

Congresses on Tropical Medicine and Malaria in Lisbon.—The sixth International Congresses on Tropical Medicine and Malaria will be held under the sponsorship of the Portuguese Government Sept. 5-13 in Lisbon, Portugal, where the Instituto de Medicina Tropical will be the executive body. The official languages will be Portuguese, French, English, and Spanish. Free discussions will be held at the end of each of the following subdivisions:

Tropical Medicine:
- Helmintic Infections.
- Protozoal Infections.
- Bacterial and Mycotic Infections.
- Virus and Rickettsial Infections.
- Tropical Physiology.
- Tropical Hygiene and Sanitation.
- General.

Malaria:
- Parasitology.
- Clinical.
- Epidemiology and Control.
- Malaria Erradication.

The Laveran Prize will be awarded to the best paper on malaria submitted to the congresses. A historical-bibliographical exhibit, tours, and a program of social events are planned. Accomodations will be provided at the Lisbon and Estoril hotels. For information write the Secretary General, Dr. Manuel R. da Cunha Pinto, Instituto de Medicina Tropical, Lisbon, Portugal (cable: MEDICO-TROPICAL—LISBON).

EXAMINATIONS AND LICENSURE

MEDICAL SPECIALTY BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: *Written Examination.* Various locations in the United States and Canada, June 18. *Oral Examination.* San Francisco, Sept. 29-Oct. 3, and Phoenix, April 5-10, 1959. The 1959 written examination will be given in various locations in the United States and Canada, July 17. The final date for filing application for the 1959 written examination is six months prior to the examination. There is no filing deadline for oral examinations. Sec., Dr. Curtiss B. Hickcox, 217 Farmington Ave., Hartford 8, Conn.

AMERICAN BOARD OF DERMATOLOGY: *Written. Several Cities,* June 30. *Oral.* Detroit, Oct. 17-19. Final date for filing all applications is April 1. Sec., Dr. Beatrice Maher Kesten, One Haven Ave., New York 32.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 20, 1958. *Oral.* Philadelphia, April 23-26; San Francisco, June 18-21; Chicago, Oct. 13-16. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Applications for certification, new and reopened, Part I, and requests for re-examination Part II, are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of application is September 1, 1958. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written,* qualifying test (Part I), January 1959. Final date for filing application is July 1, 1958. *Oral Examinations 1958* (Part II): San Francisco, June 17-21; Chicago, Oct. 17-22. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 21-23, 1959. Sec., Dr. Sam W. Banks, 116 South Michigan Avenue, Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 6-10. Final date for filing application was April 30. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 30-Nov. 1. Final date for filing application is Sept. 30. Sec., Dr. Edward B. Smith, Indiana University Medical Center, 1100 W. Michigan St., Indianapolis 7.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Cincinnati, June 13-15; Chicago, Oct. 24-26 and New York, Dec. 5-7. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Oral and Written.* Peoria, Ill., June 20-21. Final date for filing application was Feb. 1. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written.* Chicago, Oct. 9-11. Final date for receipt of case reports is July 1. Corresponding Secretary, Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PROCTOLOGY: *Oral and Written, Parts I and II.* September 1958. Final date for filing application is March 15. Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York City, Dec. 15-16; New Orleans, Mar. 16-17. Training credit for full time psychiatric and/or neurologic assignment in unapproved military programs or services between the dates of Jan. 1, 1950 and Jan. 1, 1954 will be terminated on Jan. 1, 1959. Sec., Dr. David A. Boyd, 102-110 Second Ave. S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Regular Examination in Radiology.* Washington, D. C., Dec. 8-12. Final date for filing application is July 1. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Oral (Part II).* Los Angeles, June 16-17; Portland, June 20-21. Written examinations (Part I) will be held at various centers in the United States, Canada, Hawaii, Puerto Rico, and certain military centers abroad on December 3. The date of the Fall examination in *Part I* has been changed from the last Wednesday of October as announced in its current Booklet of Information to December 3, 1958. Thereafter, examinations in Part I will be held once annually, on the first Wednesday of December. The closing date for filing applications will be August 1. *Part II.* Baltimore, March 10-11. Sec., Dr. John B. Flick, 1617 Pennsylvania Blvd., Philadelphia 3.

BOARD OF THORACIC SURGERY: The fall written examination will be given in September 1958 and closing date for registration is July 1. Registration for the fall oral examination closes July 1.

AMERICAN BOARD OF UROLOGY: *Written Examination.* Twenty-five cities throughout the country, Dec. 5. The oral-clinical examination and the examination in Pathology will be given in Chicago in February 1959. Sec., Dr. William Niles, Wishard, Jr., 30 Westwood Road, Minneapolis 26.

GOVERNMENT SERVICES

AIR FORCE

Space Symposium in November.—The Air Force School of Aviation Medicine, at Randolph Air Force Base, will sponsor a space symposium Nov. 10-12, to be held at the Hilton Hotel, San Antonio, Texas. The program which is being developed will bring together specialists in every aspect of space exploration, with emphasis on man's imminent venture beyond the earth's protective atmosphere and the necessary conditions for his survival. Many top figures in United States satellite and rocket research have already accepted invitations to present their current findings, together with a number of scientists from abroad. The Southwest Research Institute of San Antonio will conduct the meeting, with C. W. Smith, assistant to the President, as secretary. Co-chairman of the symposium will be Major Gen. Otis O. Benson Jr., commandant of the School of Aviation Medicine and Dr. Hubertus Strughold, founder of space medicine and advisor for research at the school who will also be co-editors of the volume to be published later, incorporating the papers presented in the symposium.

ARMY

General Forsee Receives Missouri Alumni Award.—Brig. Gen. James H. Forsee, M. C., received the annual Certificate of Merit award from the University of Missouri General Alumni Association at a ceremony in St. Louis, April 15. General Forsee, now chief, department of surgery, and chief of professional service at the Walter Reed Hospital in Washington, D. C., received his bachelor of arts and bachelor of science degrees from the University of Missouri, and his M.D. degree from Washington University in St. Louis in 1929, after which he entered the Army medical service. Among his other awards are the Legion of Merit; the Oak Leaf Cluster for service in Japan and Korea; 11 battle sta ; the Medal of Valor from the Italian government; the Sternberg medal; and the Ski ner medal. His volume on "The Surgery of Pulmonary Tuberculosis" has been translated into Japanese.

SELECTIVE SERVICE SYSTEM

Advisory Committee to Selective Service.—President Eisenhower has appointed three additional members of the National Advisory Committee to Selective Service on the Selection of Physicians, Dentists, and Allied Specialists to replace members who have resigned. The new committee members are Drs. Leo H. Bartemeier, Baltimore, medical director, Seton Institute, and Chairman, Council of Mental Health, A. M. A.; John Z. Bowers, Madison, Wis., dean, University of Wisconsin School of Medicine; and George M. Fister, Ogden, Utah, private practice, regent, University of Utah, and member, Board of Trustees, A. M. A.

Other members of the committee are Elmer Hess, M.D., chairman; Mary Louise Gloechner, M.D.; William B. Walsh, M.D.; George Otis Whitecotton, M.D.; Franklin Yoder, M.D.; Harold W. Oppice, D.D.S.; and Frances Graff, R.N.

VETERANS ADMINISTRATION

Hospital Managers Reassigned.—Reassignment of three VA hospital managers has been announced. Dr. Blanton E. Russell, manager, VA Hospital, Cincinnati, will be transferred as manager of the VA Hospital at Omaha. Dr. Raymond F. Smith, manager, VA University Drive Hospital in Pittsburgh, will succeed Dr. Russell as manager of the Cincinnati hospital. The Omaha hospital manag r, Dr. Horace D. Smith, will become manager of the University Drive Hospital. All are general medical and surgical hospitals.

PUBLIC HEALTH SERVICE

Scholarships for Thirteen European Scientists.—Surgeon General Leroy Burney announced April 25 that postdoctoral medical and biological research fellowships were awarded during April to 13 European scientists. Dr. Burney said "the exchange of ideas and knowledge between these scientists and scientists in the United States should eventually lead to real health benefits for people of all nations." Dr. James A. Shannon, director, National Institutes of Health, said the European scientists would receive intensive research training at outstanding U. S. medical research centers of their own choosing.

Each of the scientists holds a doctorate degree or its equivalent in one of the medical or related sciences and has demonstrated outstanding research promise. All have a workable reading and speaking knowledge of the English language and their qualifications were checked by leading medical research groups in their own countries.

The Public Health Service postdoctoral research fellowships provide a basic stipend of $3,800 per year, a dependency allowance of $350 for the spouse and each dependent child, and limited travel funds.

Appoint Chief of Radiological Health Division.—Dr. Francis J. Weber has been appointed chief of the newly established division of radiological health of the Public Health Service and will assume that duty on July 1. Dr. Weber, an officer of the Public Health Service since 1938, has been medical director of the Denver Regional Office of the Department of Health, Education, and Welfare since 1952.

DEATHS

Ellenberger, Jacob William Earl, Wilkinsburg, Pa.; Jefferson Medical College of Philadelphia, 1911; an associate member of the American Medical Association; on the staff of the Pittsburgh (Pa.) Hospital where he died March 16, aged 70, of coronary thrombosis.

Evans, Webster White ⊕ New Castle, Colo.; St. Louis College of Physicians and Surgeons, 1920; died March 1, aged 65, of arteriosclerosis.

Ezell, James J., Hopkinsville, Ky.; Barnes Medical College, St. Louis, 1899; associated with the Jennie Stuart Memorial Hospital; served as vice-president of the First City Bank and Trust Company; died March 4, aged 83, of hypertensive cardiovascular disease.

Ferguson, Everett Russell ⊕ Cleveland, Tenn.; North Carolina Medical College, Charlotte, 1917; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; veteran of World War I; died March 15, aged 65.

Fitts, Francis Moylan ⊕ Colonel, U. S. Army, retired, Washington, D. C.; born in Blacksburg, Va., in 1892; Medical College of Virginia, Richmond, 1916; commissioned in the medical corps of the regular Army in 1919; served as a member of the Typhus Mission to Poland, and chief surgeon of the Second Army; for service as director of the Medical Training Army Service Force, received the Legion of Merit; retired from active duty in 1952; returned to serve on a voluntary basis for two years as a member of the Army's Physical Evaluation Board; service member of the American Medical Association; died in the Walter Reed Army Hospital March 17, aged 65, of chronic pyelonephritis with uremia.

Goldman, Louis B. ⊕ Chicago; Chicago Medical School, 1935; Universite de Lausanne Faculte de Medecine, Switzerland, 1939; member of the American Academy of General Practice; associated with the South Chicago Community Hospital, where he died March 24, aged 50, of acute coronary infarction.

Gore, Morris Elting, Orange, N. J.; New York Homeopathic Medical College and Hospital in New York City, 1912; veteran of World War I; died in the Veterans Administration Hospital in East Orange March 25, aged 74, of carcinoma of the colon with metastasis.

⊕ Indicates Member of the American Medical Association.

Kaplan, Bernard Herbert, Philadelphia; Universität Bern Medizinische Fakultät, Switzerland, 1955; certified by the National Board of Medical Examiners; resident, Albert Einstein Medical Center, Southern Division; died in the Northern Division, Albert Einstein Medical Center, recently, aged 28, of multiple fractures and peritonitis following an automobile accident.

Kurtzeborn, Edwin E. ⊕ Tampa, Fla.; Marion–Sims College of Medicine, St. Louis, 1899; formerly practiced in St. Louis, where he was on the faculty of St. Louis University School of Medicine; member of the Missouri State Medical Association; died March 12, aged 85, of arteriosclerotic heart disease.

Kusch, Ernest H., New York City; Julius–Maximilians–Universität, Medizinische Fakultät, Würzburg, Bavaria, Germany, 1920; member of the Medical Society of the State of New York and the American Psychiatric Association; a member of the German Army during World War I; senior supervising psychiatrist at Manhattan State Hospital; died in the Tampa (Fla.) General Hospital March 22, aged 63, of acute myocardial infarction.

Ladewig, Harry Clinton ⊕ Milwaukee; Marquette University School of Medicine, Milwaukee, 1918; at one time associated with the Veterans Administration; formerly on the faculty of his alma mater; served on the staffs of the Milwaukee County Hospital in Wauwautosa and the Evangelical Deaconess Hospital; died March 11, aged 65.

Lamb, Harry E., Gooding, Idaho; John A. Creighton Medical College, Omaha, 1906; served on the staff of the Gooding County Memorial Hospital, where he died March 14, aged 79, of arteriosclerosis.

Leake, Louis Knight ⊕ Goochland, Va.; University College of Medicine, Richmond, 1903; from 1919 to 1955 county treasurer; past-president of the Bank of Goochland; died March 14, aged 78.

Light, Arthur Bomberger ⊕ Lawrenceville, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1918; certified by the National Board of Medical Examiners; served as medical director of the Lawrenceville School; died in the Mercer Hospital, Trenton, March 21, aged 64.

Little, Zack Johnson, St. Petersburg, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; formerly associated with the Veterans Administration Hospital in New York City; died March 14, aged 82.

Love, Jerome Sullivan, Hattiesburg, Miss.; Meharry Medical College, Nashville, Tenn., 1920; died Dec. 30, aged 68, of cerebral hemorrhage and hypertension.

McEachen, Esther Isabella ✦ Modesto, Calif.; University of Nebraska College of Medicine, Omaha, 1927; member of the American Academy of General Practice; associated with Modesto State Hospital; died in San Francisco March 8, aged 65.

McGuigan, Henry Thomas, Red Wing, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; past-president and secretary-treasurer of the Southern Minnesota Medical Association; on the staffs of St. John's and City hospitals; died Feb. 26, aged 82, of uremia.

Matheson, John Hollis ✦ Des Moines, Iowa; State University of Iowa College of Medicine, Iowa City, 1930; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; veteran of World War II; associated with Iowa Lutheran and Mercy hospitals, and the Iowa Methodist Hospital, where he died March 11, aged 53.

Matthews, Joseph Ira, Dallas, Ga.; Atlanta School of Medicine, 1911; formerly state legislator; died March 12, aged 71, of coronary thrombosis.

Messing, Arnold ✦ Newburgh, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1916; fellow of the American College of Surgeons; veteran of World War I; past-president of the Orange County Medical Society; formerly practiced in New York City, where he was associated with Gouveneur and Mount Sinai hospitals; associated with St. Luke's Hospital in Newburgh and Cornwall (N. Y.) Hospital, where he died March 20, aged 66, of carcinoma of the colon.

Munch, Otto Louis ✦ Pittsford, N. Y.; born in Omaha July 6, 1900; Creighton University School of Medicine, Omaha, 1927; president of the Wayne County Cancer Society; veteran of World War II; formerly on the faculty of the University of Rochester School of Medicine and Dentistry in Rochester, N. Y., where he was director of medical laboratories and chief pathologist at Genesee Hospital; at various times director of laboratories at the Veterans Administration Hospital in Bath, St. Jerome's Hospital in Batavia, and at Kenmore (N. Y.) Mercy Hospital; director of laboratories at Newark (N. Y.) State School, where he died at the hospital March 10, aged 57, of arteriosclerotic heart disease.

Nelson, Richard Marion ✦ Atlanta, Ga.; Baltimore Medical College, 1903; died March 6, aged 76, of cardiac failure.

O'Brien, Joseph John, Glendale, Calif.; University of Southern California School of Medicine, Los Angeles, 1908; died March 8, aged 76.

Parkin, Victor ✦ Los Angeles; Hahnemann Medical College of the Pacific, San Francisco, 1912; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; veteran of World War I; served as resident psychiatrist at the Los Angeles County General Hospital; formerly consultant in psychiatry at the Veterans Administration Hospital in Sawtelle, Calif., at Psychopathic Court, and at the Los Angeles County Juvenile Court; a member of the State Lunacy Commission; died March 19, aged 78.

Parmenter, Derric Choate ✦ Tulsa, Okla.; Harvard Medical School, Boston, 1917; member of the American Public Health Association; formerly on the faculty of his alma mater; veteran of World War I; served as head of the Dyer County Health Department in Dyersburg, Tenn.; formerly in charge of public health work in Greenup County, Ky., and health officer of Breathitt County, Ky.; died March 11, aged 67, of cancer.

Rinkenberger, Fred W. ✦ Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; fellow of the American College of Surgeons; on the staff of the California Hospital, where he died March 10, aged 79, of arteriosclerosis.

Schoolfield, Benjamin Lucky ✦ Dallas, Texas; College of Physicians and Surgeons, Memphis, 1911; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; veteran of World War I; on the staffs of the Methodist and St. Paul's hospitals; died in the Terrell (Texas) State Hospital March 6, aged 69, of acute hemorrhagic pancreatitis.

Serrill, William W., Endeavor, Pa.; University of the South Medical Department, Sewanee, Tenn., 1904; an associate member of the American Medical Association; for many years president of the Forest County National Bank of Tionesta; died March 19, aged 80, of coronary thrombosis.

Shugerman, Harry Philip ✦ Birmingham, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1908; veteran of World War I; died March 11, aged 76, of arteriosclerosis and cerebral thrombosis.

Spitaleri, Liborio Nicholas, Elizabeth, N. J.; Regia Universitá degli Studi di Bologna. Facoltà di Medicina e Chirurgia, Italy, 1940; an associate surgeon with the New Jersey Manufacturers Casualty Insurance Company in Newark; died in Newark March 19, aged 54, of coronary occlusion.

Startzman, Clyde Kress ✦ Bellefontaine, Ohio; Indiana University School of Medicine, Indianapolis, 1915; member of the city-county health board, on which he served for many years; past-president and for many years member of the school board; veteran of World War I; on the staff of the Mary Rutan Hospital, where he died March 3, aged 67, of ruptured abdominal aneurysm.

Strauss, Edward Henry ✦ Florence, Ore.; University of Texas School of Medicine, Galveston, 1940; died recently, aged 41, of pulmonary edema and cardiac dilatation.

Swertfeger, Herbert William ✦ Virginia Beach, Va.; University of Virginia Department of Medicine, Charlottesville, 1933; associated with De Paul and Norfolk General hospitals in Norfolk; died March 11, aged 56, of coronary disease.

Thomas, Henry Bascom ✦ Chicago; born in Elk Garden, Va., Aug. 15, 1875; Northwestern University Medical School, Chicago, 1903; professor of orthopedics emeritus at the University of Illinois College of Medicine; from 1903 to 1920 professor of hygiene and physical education and medical adviser, Armour Institute of Technology; at one time instructor of orthopedic surgery at his alma mater; specialist certified by the American Board of Orthopaedic Surgery; secretary of the Section on Orthopedic Surgery from 1917 to 1922 and chairman, 1923-1924, American Medical Association; member of the American Orthopaedic Association, Clinical Orthopaedic Society, of which he was past-president, and the American Academy of Orthopaedic Surgeons; past-president of the Chicago Orthopedic Society; veteran of World War I; associated with St. Luke's, Illinois Research, and Cook County hospitals, and Illinois Surgical Institute for Children and the Home for Destitute Crippled Children; died in the Presbyterian–St. Luke's Hospital March 25, aged 82, of carcinoma of the prostate.

Thomas, William McKinley, San Francisco; Meharry Medical College, Nashville, Tenn., 1930; veteran of World War II; on the staff of Mount Zion Hospital; died March 5, aged 54, of coronary thrombosis.

Tibbetts, Raymond Richard ✦ Bethel, Maine; Medical School of Maine, Portland, 1901; president of the Bethel Library Association; trustee of the Gould Academy; veteran of World War I; associated with the St. Louis Hospital in Berlin and the Rumford (Maine) Community Hospital; died Feb. 27, aged 82, of cerebral hemorrhage.

Titus, Charles ✦ Wilkinson, Ind.; Bellevue Hospital Medical College, New York City, 1894; member of the American Academy of General Practice; associated with the Hancock County Memorial Hospital in Greenfield; died March 11, aged 88, of cerebral thrombosis.

Watson, Frank Warner ✦ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1919; on the staff of the White Cross Hospital; died March 1, aged 63, of coronary disease.

Whalin, Marion Louise ✦ Brookline, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1935; certified by the National Board of Medical Examiners; died Feb. 27, aged 49.

White, Wendell, Los Angeles; Indiana University School of Medicine, Indianapolis, 1909; on the staff of Alvarado Hospital; died March 9, aged 77, of acute coronary occlusion.

Wilkins, Robert Weymouth ✦ Fort Wayne, Ind.; University of Michigan Medical School, Ann Arbor, 1927; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; veteran of World War II; on the staff of the Lutheran Hospital, where he died March 8, aged 56, of coronary thrombosis.

Woolhandler, Harry William ✦ Pittsburgh; University of Buffalo School of Medicine, 1932; assistant professor of dermatology at University of Pittsburgh School of Medicine; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; past-president of the Pittsburgh Dermatological Society; veteran of World War II; a staff member of Montefiore and South Side hospitals; died March 11, aged 47, of acute ventricular fibrillation.

Yohannon, Joash Isaac ✦ Lieut. Commander, U. S. Navy, retired, Eau Gallie, Fla.; Medical College of Virginia, Richmond, 1915; retired June 30, 1940; veteran of World Wars I and II; died in Jacksonville March 2, aged 72.

Young, Anthony Obediah, Butler, Ill.; Beaumont Hospital Medical College, St. Louis; 1893; formerly practiced in St. Louis, where he was associated with Missouri Baptist Hospital; died Feb. 22, aged 89.

Young, Clifton Aurelius Jr., Dunedin, Fla.; University of Tennessee College of Medicine, Memphis, 1956; interned at City of Memphis Hospitals in Memphis, Tenn.; died in the North Mississippi Hospital in Holly Springs, Miss., Dec. 1, aged 23, of anaphylactic shock following injection of tetanus antitoxin given for a minor laceration of nose due to an automobile accident.

FOREIGN LETTERS

BRAZIL

Polyposis.—Dr. Silvio Levy (*Revista do Hospital Matararazzo, São Paulo*) cites as evidence to show that polyps of the colon or rectum are premalignant lesions (1) the fact that both polyps and carcinomas are located in the various segments of the large intestine in almost equal percentage; (2) the parallelism between the incidence of carcinomas and polyps of the large intestine in adults, in different ages and sexes; (3) the frequency with which polyps are associated with rectocolic carcinoma; (4) the transformation of nontreated polyps into carcinoma; (5) the presence of adenomatous remaining tissue in many rectocolic carcinomas, even in a late stage; (6) the high incidence of malignant degeneration in multiple polyposis; and (7) the high incidence of carcinomatous structure in many rectocolic adenomas. Differences persist as to the criteria to be adopted by the pathologists concerning the diagnosis of malignancy in adenomas. Many do not recognize the existence of malignancy unless there is a definite invasion of the tissue by neoplastic epithelial elements. They thus reject the concept of the confinement of malignant cells (carcinoma in situ). The greatest incidence of polyps has been found in the age group 40 to 80, men being more subject to them than women and white people more than nonwhite. In the author's series of 67 patients with polyps, 18 had carcinoma. Some of these were under 10 years of age.

The author advocates (1) sigmoidoscopy in every patient examined for the first time, regardless of his age; (2) annual sigmoidoscopy in every patient over 40; (3) annual sigmoidoscopy and barium enema in all patients with a familial history or with a previous polyp; and (4) sigmoidoscopy with barium enema in all patients with rectal symptoms; this procedure should be repeated after six months if the first examination gives negative findings.

CANADA

Supplemental Oxygen for the Newborn.—Because the newborn premature infant in respiratory distress is menaced on the one hand by the danger of damage to vital centers due to hypoxia and on the other by retrolental fibroplasia, Swyer and Wright (*Canad. M. A. J.* **78**:231, 1958) controlled the oxygen supply by a diamagnetic oxygen analyzer and an ear oximeter. They found that these instruments could be satisfactorily used to control the administration of supplemental oxygen at the minimum level necessary to secure physiological oxygenation of arterial blood in the newborn. By means of these instruments arterial oxygen saturation can be correctly assessed. The clinical assessment of hypoxia is unreliable. In their series of 31 infants they thought that 15 had probably received oxygen unnecessarily though not in harmful amounts. Of those who required oxygen, 10 needed a concentration of above 35% initially. The required level for normal arterial oxygen saturation drops progressively over about five days to the atmospheric level of 20.9% in most cases.

Incidence of Emotional Disease.—It is difficult to obtain a true estimate of the incidence of emotional disease in a population. Harding le Riche (*Canad. Psychiat. A. J.* **3**:23, 1958) attempted to make such an estimate among the population of a prepaid medical care plan in Ontario from a sampling of those with psychiatric diagnoses. Of each 1,000 participants there were 33 with a definite psychiatric diagnosis, and these required a total of 120 services for 36 episodes. The commonest diagnosis was of anxiety reaction without somatic symptoms, followed by nervousness and debility, psychoneurotic disorders, psychoneurosis with somatic symptoms affecting the digestive system, primary childhood behavior disorders, psychoneurosis with symptoms affecting the circulation, and neurotic depressive reaction. The major psychoses were uncommon in this prepaid medical care group, which was relatively favored, having an excess of young working adults and children. About 2.35% of the total expenditure of the plan for medical care was paid out for psychiatric conditions. When a broader classification was taken, including illnesses possibly or probably psychosomatic, such as migraine, peptic ulcer, pruritus, and hypertension the total expenditure was 14% of the total cost to the plan.

Alcoholism in Rats.—It has been suggested in the past that in a colony of rats, given a choice of water and alcohol, some rats will choose the former and some the latter. It has further been suggested that this choice is genetically determined. This would be an acceptable hypothesis to many alcoholics, who might plead a genetic predisposition to alcoholism. Two observers from the Banting and Best Department of Medical Research, Toronto (*Canad. J. Biochem. and Physiol.* **36**:37, 1958) conducted some experiments on adult male rats fed an ade-

The items in these letters are contributed by regular correspondents in the various foreign countries.

quate diet, which cast doubt on the genetic theory. An early impression had been that a number of the rats preferred 15% alcohol to water, but this was found to be incorrect. The reason for their preference lay in the placing of the drinking fountains. A careful study of the records of experiments with certain individual rats showed that several of the "alcoholic" rats had suddenly become "teetotallers" and that some of the others had begun to drink large amounts of alcohol. When the observers became aware of the importance to some rats of the location of the fountains and deliberately varied this, the relative consumption of the two liquids changed. It was conjectured that some animals were right-pawed and others left-pawed and that the arrangement of the fountains affected the ease with which the rat could open the lid to get a drink.

Costs of a Prepaid Medical Care Plan.—Administrators of prepaid medical care plans are interested in knowing certain facts about those of their subscribers who cost an exceptionally large sum of money during the year. A study on these lines of a sample of 3,000 subscribers to a comprehensive medical, surgical, and obstetrical plan was made in Ontario ("A Special Study of High and Low Cost Groups in a Canadian Prepaid Medical Care Plan" by the Research and Statistics Department of Physicians' Services Incorporated). The sample was divided arbitrarily into two groups, a high-cost group, containing all those persons who cost the plan $60 or more in the year under review, and a low-cost group comprised of the rest. The high-cost group contained only 611 persons (13.5% of those ill in the sample), or 8% of all participants. This 8% cost the plan over 50% of all funds expended on the sample. The list of costly conditions, arranged in order of magnitude, was headed by diseases of the digestive system, followed by deliveries, complications of childbirth and the puerperium, diseases of the genitourinary system, and diseases of the circulatory system. When a profile of the high-cost group was constructed, it was found to contain an excessive number of young adults between 20 and 45 years of age. There were not as many persons of 50 years and over in the high-cost group as might be expected. The age group 20 to 45 included women in the childbearing period and also those requiring the greatest number of gynecologic operations.

The expensive young adults had a high incidence of appendicitis and hernia repair. Medical treatment for peptic ulcer was a costly item. Diseases of the nervous system and major ocular operations were expensive, especially for older people, and otitis media remained a costly item for the younger group. As regards the circulatory system, hemorrhoids and other varicose veins and degenerative cardiovascular diseases were expensive. In the high-cost group there was also a large proportion of fractures and other accidents. Various rheumatic conditions, psychoneuroses, diabetes, thyroid disease, asthma, and obesity were all represented in the high-cost group, and upper respiratory diseases were commoner in this group than in the low-cost group. Although tonsillectomy and circumcision rates were high in the high-cost group, each of these operations cost relatively little. It was the bulk of them that imposed a burden. The 10 leading categories in the high-cost group were diseases of the respiratory system; genitourinary system; digestive system; delivery, childbirth, and puerperium; circulatory system; nervous system; accidents; "symptoms"; senility; and locomotor system, skin, and cellular tissue. In addition, the high-cost group required more services (physicians in this plan are paid on a fee-for-service basis) per disease episode. Acute respiratory illness still presents a great challenge to both curative and preventive medicine. Even in these days of reasonably accurate diagnosis, vague symptoms came eighth on the list of frequency in the high-cost group and seventh in the low-cost group. Other vague diagnoses were dermatitis and anemia of unspecified type.

Alcoholism.—The seventh annual report of the Alcoholism Research Foundation of Ontario makes depressing reading, for the foundation now estimates that Ontario has a total of 76,000 alcoholics and that since World War II alcoholism has been increasing at an average rate in excess of 4,000 cases a year. The foundation, operating in four Ontario cities, treated only 1,666 patients last year, and even though many other institutions and organizations gave treatment to alcoholics, the facilities were far from meeting the needs. Alcoholism represents the largest public health problem facing this generation, and there is a pressing need for great increases in the number of physicians and others who can and will treat this disease. The foundation sees much hope for the future in the recognition of alcoholism as a health problem and not a disciplinary problem by employers. Their industrial health programs are being revised to include treatment for alcoholic employees. From 3 to 6% of the employees in industries that the foundation studied have problems with alcohol, and these employees average 15.5 days of absenteeism per year, or about 10 days over the normal rate. The foundation has been rapidly developing the educational side of its work, but it still spends a large proportion of its money on research.

Financing Health Insurance.—One of the problems disturbing the economists is the amount of money a nation can spend on financing health insurance without impairing its economy in other directions. Last year a monograph entitled "Underwriting Canadian Health" was issued jointly by the Canadian Chamber of Commerce and the Canadian Life Insurance Officers Association. Projecting costs for

health insurance forward to 1980, the report suggested that a government-sponsored universal medical insurance plan would not be feasible. More recently, Malcolm Taylor, a political economist, criticized some of its findings. He said "If we cannot afford to pay for hospital care through a government program, neither can we afford to pay for it by any other means." The only reason that a government hospital care plan would increase the cost of hospitalizing patients over and above the normal rate of increase would be that certain people not previously insured were receiving care they should have had right along.

The example of rising hospital costs in Saskatchewan, which has a universal hospital plan, is considered not to apply to the rest of Canada, for Saskatchewan has used its hospitals as a means of getting medical care to the rural patients who make up the great bulk of the population and who in an urban center would have been treated at home. Dr. Taylor also asks why, if the economy is being strained, it is the health expenditures that cause concern and not the expenditures on luxuries. He believes that, instead of the bankruptcy predicted by the report, rising standards of health services in a health insurance scheme will be part of a rising standard of living. He also believes that government will only act as a channel for part of an insurance program and that there should be a rapid expansion of voluntary prepayment and commercial insurance on a bolder scale. In any case, only a part of the job of providing hospital services is going to be channeled through government under the new scheme, namely the payment of operating costs. Provision of facilities will remain a voluntary, private, and local responsibility.

INDIA

Nephrotic Syndrome in Children.—L. S. Prasad (*Indian J. Child Health,* vol. 7, March, 1958) stated that many views have been advanced regarding the cause of the nephrotic syndrome. The authors studied the clinical features in cases which fulfilled the terms of definition of this syndrome, namely, those showing marked edema, albuminuria, hypoproteinemia, hypercholesterolemia with or without hypertension, hematuria, and impaired renal function. In their series of 20 cases the ages of the patients varied between 1 and 11 years. A history of upper respiratory infection preceding the disease was obtained in only four cases. One patient had a history of frank hematuria, three had an acute onset, and the onset was insidious in the rest. The commonest symptoms were edema and oliguria. Two had a pulse rate above 120 per minute. There was no significant rise in blood pressure. One patient had enlarged cervical lymph nodes. The edema was slight in three, moderate in 11, and massive in 6. The liver was palpable in 12 and the spleen in 1. Two patients showed slight ascites, while it was moderate in 7 and massive in 11. Rhonchi in the chest were heard in five and eight developed intercurrent infections and fever with deterioration in the general condition and a decrease in urinary output.

In one patient spontaneous diuresis occurred, with pyrexia of unknown cause. One patient developed hypocalcemic tetany probably due to the alkalosis from prolonged administration of alkalies. Frequent attacks of diarrhea occurred during treatment with alkalies, and they responded better if alkalies were withdrawn. Four patients had Escherichia coli in the urine culture. The Wassermann reaction was positive in two. All but two had severe albuminuria, and erythrocytes were present in the urine in all but one. All but two had granular casts. The blood urea level was raised and ranged from 25 to 100 mg. per 100 cc., while the blood cholesterol varied between 188 and 470 mg. per 100 cc. The total plasma protein levels were lowered in all but three. The author concluded that the so-called nephrotic syndrome may be a form of nephritis but still a clinical entity, there being no history of acute nephritis in most cases. If followed up for years most patients would be found to develop chronic nephritis.

Infantile Diarrhea.—Basu and Rao (*Indian J. Child Health,* vol. 7, March, 1958) studied 100 patients with infantile diarrhea to determine the relative values of sulfaguanidine; Chlorostrep (equal parts of chloramphenicol and dihydrostreptomycin); oxytetracycline; a combination of sulfadiazine, phthalylsulfathiazole, and chloramphenicol (chloramphenicol-sulfa); and pectin and kaolin compound. Of the children in the series 80% were below one year of age. Most were admitted with diarrhea of two to four days' duration. The condition was classified as slight in 24, moderate in 56, and severe in 20; 39 were treated with sulfaguanidine, 21 with Chlorostrep, 18 with chloramphenicol-sulfa, and 11 each with oxytetracycline and the pectin and kaolin compound. The progress was judged by the number of stools per day, their character, urinary output, vomiting, general condition, and the number of days of hospitalization required. Chlorostrep was more effective than any of the other drugs. Patients given this drug who were slightly or moderately ill required about six and eight days respectively in hospital. The results with oxytetracycline were not encouraging, and those with chloramphenicol-sulfa were no better than those with Chlorostrep. There were 20 patients whose disease was severe, and of these 12 died; but none of the 6 treated with Chlorostrep died. Ten patients were treated with sulfaguanidine, and of these 3 died; and 2 received chloramphenicol-sulfa, and of these one died. The effect of oxytetracycline and the pectin and kaolin compound could not be studied adequately in patients with severe diarrhea, as the only patient in each

of these categories died. Correction of fluid and electrolyte balance is an important part of the treatment of this condition. When facilities for identification of the responsible pathogens are available, chemotherapy may wait for the identification, but if they are not readily available, Chlorostrep should be given by mouth.

Vitiligo.—Chaudhari and Chakraborty (*J. Indian M. A.*, vol. 30, March 1, 1958) stated that the main ultimate factor causing vitiligo is probably the failure of the intracellular metabolic processes concerned with the conversion of tyrosine to melanin, the reason for which is still obscure. The tyrosinase activity of the melanocytes is believed to be absent in this disease. The authors took biopsy specimens from marginal areas so that the same specimen showed diseased and normal tissue. Of the 10 patients thus studied, 4 had received previous treatment without benefit. A deficiency of tyrosine was found in the vitiligenous skin. Here the basal cells of the epidermis contained less ribonucleic acid as compared with normal skin. Most of the nuclei of basal cells and prickle cells of the affected area were larger in size than normal. The nucleoli were more fragmented and showed a relatively weaker reaction for desoxyribose nucleic acid, but the reaction for hyaluronic acid and for alkaline phosphatase was relatively stronger.

Anemias in Childhood.—O. P. Ghai (*Indian J. Child Health*, vol. 7, February, 1958) studied 52 cases of anemias in children below the age of 3 years. The mothers of 32 were undernourished and anemic. The diet was universally inadequate in both breast-fed and artificially fed children. Mixed feeding was started late and was of poor quality. Eight patients showed evidence of clinically detectable nutritional deficiency. Plasma proteins were below normal in 26. Infections (mainly gastrointestinal and respiratory) were present in 45. Eight had a positive tuberculin reaction, and 7 of these had radiologic evidence of tuberculosis. Two had ankylostomiasis. In 18 the hemoglobin was 5 Gm. per 100 cc. or less on admission and in 29 it was between 5.1 and 9.5 Gm. per 100 cc. Excluding the five patients with congenital hemolytic anemia, the type of anemia was normocytic normochromic in 19.15%, normocytic hypochromic in 34%, microcytic normochromic in 6.4%, microcytic hypochromic in 21.3%, macrocytic normochromic in 14.9%, and macrocytic hypochromic in 4.25%. Malnutrition and infections were the chief etiological factors. Hemolytic anemia was present in 21.16% of these patients, 9.62% of whom had congenital hemolytic anemia. Erythroblastosis due to Rh incompatibility was rare in this series. The cause of hemolysis in the rest of the patients with hemolytic anemia could not be determined. Acute acquired hemolytic anemia was the most likely diagnosis in some of these.

Chloramphenicol in Typhoid.—Kamat and Damany (*J. Indian M. A.*, vol. 30, March 1, 1958) treated 87 patients with typhoid. All but four were given chloramphenicol every 12 hours. Of the four not so treated two left soon after admission against medical advice, one died before treatment could be started, and one made a prompt recovery without the drug. Chloramphenicol was given initially in doses of 0.75 Gm. twice a day. The dose was reduced to 0.5 Gm. twice a day when the patient's temperature fell to between 99 and 100 F (37.2 and 37.8 C) and was further reduced to 0.25 Gm. twice a day when his temperature became normal. This dose was continued for four to six days. Patients with a low temperature range such as those with relapses, or those who had received inadequate antibiotic treatment prior to admission, and those with paratyphoid; and all children below the age of 10 years were given 0.5 Gm. twice daily as the initial dose. When oral administration was not possible as in patients with severe toxic conditions and those with complications, intramuscular injections of 0.5 Gm. were given. Most of the patients were in the age group 11 to 20, the youngest being 4 and the oldest 49. The average duration of fever before admission was 22 days. It was continuous in 74, intermittent in 7, and was classed as relapse in 6. Eight gave a history of rigors in the beginning.

The commonest of the accompanying symptoms was an unproductive cough, present in 34. Mild toxemia was present in 30, moderate toxemia in 21, and severe in 3. Bronchitis was present in 42. Marked anemia was found in 19; leukopenia in 66; and leukocytosis in 20. The blood count was normal in the rest. Relative lymphocytosis was present in 77. The Widal reaction was performed in 77. In 63 of these it was positive, and 13 patients were found to have paratyphoid A. Of 29 blood cultures 22 were positive for Salmonella typhi. Severe diarrhea in three patients was relieved by supportive treatment and dietetic restrictions. In one patient an intractable diarrhea was checked by giving chloramphenicol. Treatment with other antibiotics prior to admission had failed. Four patients, one of whom died, had a gastrointestinal hemorrhage. Perforation occurred in two patients, one of whom died. Encephalitis developed in two patients, one of whom died. One patient developed pneumonia and bursitis, a rare complication, after the temperature had returned to normal. Toxic myocarditis and auricular fibrillation developed in one. Of the 87 patients, 7 (all adults) died. The temperature returned to normal in three to six days in most patients. Relapses occurred in seven patients who were treated with chloramphenicol and who responded promptly. No toxic effects due to the drug were noticed. Blood counts made on discharge in the 19 patients with anemia showed no evidence of aplastic anemia.

Treatment of Tuberculosis.—S. C. Lahiri and coworkers (*J. Indian M. Profession*, vol. 4, March, 1958) used a salt obtained by treating isoniazid with aminosalicylic acid to treat nine patients who had tuberculosis. Two of the patients had miliary tuberculosis, two glandular, three intestinal, and two had polyserositis. The salt was given in doses of 200 mg. three times a day. The duration of treatment varied from 30 to 45 days. Of the two patients with miliary tuberculosis one was also given 10 Gm. of streptomycin daily and showed marked improvement both clinically and radiologically. The other (farther advanced) died. All other patients showed moderate to marked improvement, especially those with glandular tuberculosis, in whom the results were excellent. In all patients the temperature was controlled except in the patient who died and another who required 30 Gm. of streptomycin to control the temperature after the isoniazid salt failed to do so within 15 days. Toxic reactions were practically absent except for a slight gastrointestinal upset in one and headache and palpitation in another.

NEW ZEALAND

Accident Rate.—About 11.5% of all beds in general hospitals are occupied by accident victims and the running costs of maintaining these beds exclusive of capital costs is about $4,500,000 a year. There were 45,000 accidents, 97 of them fatal, in industry during 1957. This showed a marked improvement on the figures for 1956. Industrial accidents cost this country about 30 million dollars a year, and in 1955, the last year for which detailed statistics are available, the time lost through 42,038 accidents was 832,000 days. It is estimated that nearly 1 million days were lost from work last year. Traffic accidents in 1957 totalled 7,938 compared with 7,042 in 1956. There were 383 traffic deaths last year. In 1957, 44 agricultural employees died in accidents. Of these, tractors were involved in 33. No fewer than 23 children were accidentally killed on farms last year. A "Safety Week" exhibition in Wellington stressed the need for greater safety consciousness.

Hypogonadism Preceding Pituitary Tumors.—Starting from the facts that in rodents partial or complete impairment of thyroid and also of gonadal function leads in time to the development of pituitary tumors and that there is some scattered evidence of pituitary tumor formation in man following prolonged thyroid deficiency, Prof. J. E. Caughey (*Australian Annals Medicine*, vol. 6, p. 93, 1957) attempted to correlate hypothyroidism or hypogonadism with the development of pituitary tumors in man. Some of Cushing's classical case records and the records of 50 patients studied in the Dunedin Hospital were scrutinized. In many of these the documentation was inadequate. No case was found in which hypothyroidism appeared to be the forerunner of a pituitary adenoma. The search for evidence of hypogonadism preceding the development of pituitary tumors proved to be more rewarding. Cushing cited two cases, and four of the author's cases supported such a suggestion. Two of the author's cases were women in whom bilateral oophorectomy was followed 24 and 23 years later by the development of pituitary tumors. In two men relative hypogonadism preceded the development of pituitary tumors. Although the search for cases of pituitary tumors that might have been preceded by a state of hypothyroidism proved to be fruitless, this is not surprising as the hypothyroid syndrome is now usually recognized and treatment is instituted early. In rats and mice tumors can be prevented by giving thyroid hormone. Thus in recent years severe untreated myxedema of prolonged duration is rare. In rats and mice surgical ablation of the gonads leads in time to the development of basophilic adenomas of the pituitary. In the two human cases cited by Cushing the clinical evidence suggests a degree of hypogonadism, which may be attributed to the cystic state of the ovaries in both patients.

In all of Professor Caughey's patients there was evidence of hypogonadism. In men with pituitary tumor of the chromophobic type there is often evidence of defective secondary sexual hair growth for many years before the patient presents symptoms and signs of a pituitary tumor. This suggests a prolonged period of defective androgenic function preceding the development of the tumor. In three of the author's patients the tumor was clearly chromophobic, whereas the reports on rats and mice were of basophilic tumors. This has to be viewed in the light of modern cytological study of the pituitary. The chromophobic cell is an inactive cell and may represent a quiescent phase of an acidophilic cell. With modern staining methods, chromophobic cells are often found in patients with clearly defined acromegaly. This suggests that the acidophilic cell may be transformed to a chromophobic cell. In all six cases reported there was evidence of complete or partial failure of the gonads. Drawing on the analogy with the animal experiments, it seems possible that the development of the pituitary tumors was due to an overactivity of gonadotropic cells with subsequent tumor formation.

Alcoholism.—In a circular letter sent to all medical practitioners, the Department of Health stresses that the maximum age incidence of alcoholism is between 35 and 55. Men predominate. Alcoholics tend to show better than average efficiency in whatever job they have chosen, and a significant proportion come from the managerial and admin-

istrative ranks. Early signs include (1) the necessity to sneak extra drinks; (2) the necessity to drink before starting the day; (3) the inability to stop short of drunkenness; (4) the development of "black-outs," i. e., periods of amnesia either after a drinking spree or independently; (5) increase in absenteeism from work; (6) a liability to carelessness and accidents on the job; (7) such changes in personality as carelessness in dress, moodiness, and unpredictable behavior; (8) disregard of personal, family, and work obligations, and of social and moral standards generally; and (9) increasingly transparent excuses for failure. In many cases the alcoholic will minimize, or even deny, his drinking problem when he first consults a physician. Advice must be offered in a friendly and uncritical fashion initially. The alcoholic is almost invariably a rather insecure and touchy person and direct reproach or disciplinary measures are almost certain to intensify the problem. The emphasis should be on the medical aspect and the possibility of treatment.

Poliomyelitis Vaccine.—The Department of Health last year received monthly supplies of poliomyelitis vaccine from Australia which were used to vaccinate children and pregnant women. Under this year's scheme, children from 2 to 16 will be vaccinated. The first two injections are given 4 weeks apart and the booster some time between 6 and 12 months later. Many children who were injected on the first two occasions with British vaccine will get a booster of Australian vaccine.

Vascular Pattern of Regenerated Tendons.—Although it has been stated that the structure of regenerated tendon ultimately becomes normal, Dr. N. W. Nisbet (*Proceedings University of Otago Medical School*, vol. 35, p. 26, 1957) reported that neither the microscopic structure nor the intratendinous vascular pattern of the tenotomized tendo Achillis of laboratory animals did so even after nearly a year. Subcutaneous and open tenotomies of the tendo Achillis of the rabbit, guinea pig, and rat were performed. Only the rabbits' legs were immobilized in plaster for three weeks. The animals were killed at intervals ranging from a few days to nearly a year after tenotomy. In the early stages of regeneration the vessels from the surrounding tissues invaded the forming tendon. Ultimately, in a tendon which functioned adequately, they consisted of a series of coarse looped vessels reaching the surface of the tendon from the surrounding tissues. This pattern in no way resembled the delicate vascular grid formed by the capillaries related to the tendon fasciculi in the normal state. The venous pattern of regenerated tendon was likewise irregular. These new intratendinous vessels ultimately anastomosed with the intratendinous vessels of the tendon ends. These vascular arrangements of regenerated tendon were consistent with the other histological findings. Even after nearly a year the structure of the tendon fasciculi remained coarse and irregular, and the appearance did not suggest that it would ultimately return to normal, despite adequate function. Dr. Nisbet concluded that regenerated tendons do not acquire a normal cellular and vascular structure.

UNITED KINGDOM

Hypnosis in Plastic Surgery.—A recurrent problem in plastic surgery is the maintenance in apposition of two widely separated areas while tissue is being transferred from one to the other. The use of plaster of paris is uncomfortable, causes sores, immobilizes joints, and produces stiffness that may require weeks of physiotherapy for its relief. Bearing in mind that some subjects under hypnosis can be placed in bizarre postures and fixed there until the suggestion is given for release, Kelsey and Barron (*Brit. M. J.* 1:756, 1958) considered the possibility of securing fixation by this means. A patient of 24 was selected for the test. He had extensive tissue loss from the fore part of the right foot, which was to be repaired with a pedicle from the abdomen transported via the left forearm. As a preliminary measure, the patient was put under complete hypnosis, and the left arm was fixed against the abdomen in the position it would occupy during and after the operation. Under hypnosis the patient was instructed to lock the arm in this position. This was done so effectively that it could not be moved voluntarily, nor could it be moved by attendants until unlocked by hypnosis later. After several trial runs of hypnosis, the operation of freeing a pedicle from the abdomen and inserting it into the wrist was performed with the patient under local analgesia. The patient was hypnotized after optimal positioning of the forearm and wrist at the end of the operation and ordered to lock the arm in this position. He was then brought out of hypnosis. The position was maintained accurately until released by hypnosis at the next operation three weeks later, when the lower end of the pedicle was freed from the abdomen and inserted into the forearm. It was observed with astonishment that from the moment of release movement of the elbow and shoulder joints was full, free, and painless.

A similar procedure was adopted for the transfer of the pedicle from the wrist to the fore part of the foot. After a trial run of hypnosis the operation was performed with the patient under local analgesia, with his arm and wrist placed in the optimal position and locked there under hypnosis. This position was maintained for 28 days, during which the patient slept sitting up. At the end of this time the arm was unlocked under hypnotism. Immediately after unlocking the movements of all the joints, including those of the spine and fingers, were full,

free, and painless. Kelsey and Barron suggest that this hypnotic method of fixation be used when possible, and that physiotherapists and selected nurses might be trained in hypnotism for this purpose.

Prostatitis and Ankylosing Spondylitis.—Mason and co-workers (*Brit. M. J.* 1:748, 1958) investigated the incidence of prostatitis in men with ankylosing spondylitis. A possible association was suggested by the occurrence of prostatitis in patients with Reiter's syndrome and the frequent presence of genital infection in patients with ankylosing spondylitis. The authors studied 54 men with the latter and compared them with 86 who had rheumatoid arthritis and 59 who had Reiter's syndrome. Prostatic fluid was obtained by massage and examined by dark-field microscopy for clumps of polymorphonuclear leukocytes. The diagnosis of chronic prostatovesiculitis was made on finding clumps of pus cells containing a minimum of 10 cells per high-power field. A high incidence of prostatitis (83%) was found in the patients with ankylosing spondylitis, compared with a much lower incidence (33%) in those with rheumatoid arthritis. As would be expected nearly all patients with Reiter's syndrome had prostatitis. Whether the coexistence of ankylosing spondylitis and prostatitis is an associated phenomenon or whether the conditions are etiologically related is not clear. Until the organism responsible for nonspecific urethritis is identified, cause and effect cannot be distinguished, and at present no more than an association between the two conditions can be established.

Mitral Valvotomy and Pregnancy.—Pregnancy in patients with severe mitral stenosis still remains hazardous, mainly because of pulmonary edema. The surgical relief of the stenosis offers a new approach, but the place of valvotomy has been the subject of controversy. Wade and co-workers (*Lancet* 1:559, 1958) assessed the results of initial valvotomy in pregnancy from their series of 27 patients and an examination of the recent literature, covering 77 others. The operative mortality in the 104 patients was 2.2% and the abortion rate 5.6%. They concluded that pregnancy does not increase the operative risk, which approximates closely the anticipated mortality in patients in groups 2 and 3 of the American Heart Association's classification. The maternal mortality is probably increased by valvotomy during pregnancy in contrast to medical management, but this increased risk is no more than that which would be incurred if the pregnancy were allowed to continue without operation and valvotomy were performed post partum. Compared with medical management the operation does not increase the fetal mortality. This was 5.6% in the patients operated on and 10.2% in a series of 990 pregnancies complicating all forms of heart disease. Of these 6.4% were terminated because of the heart disease. The results compared favorably with the anticipated abortion rate of 2% from the 12th week onwards in healthy women. The authors concluded that if during pregnancy the symptoms are severe enough to warrant it and if valvotomy is technically feasible, it is the treatment of choice.

Seventeen pregnancies in 16 patients who had previously undergone mitral valvotomy were followed: 12 living children were delivered normally at full term; one pregnancy was terminated because of heart failure; one patient was delivered by cesarean section at 38 weeks because of toxemia; and there were two fetal deaths unrelated to the mothers' heart condition. Symptoms due to severe pulmonary congestion were encountered in 3 of 10 patients placed in group 1 after the operation and 5 of 6 patients in group 2. The authors concluded that although pregnancy following successful valvotomy is usually safe, difficulties may be encountered, and that a technically unsatisfactory operation, even if followed by reasonable functional improvement, is unlikely to permit pregnancy to take a normal course. The assessment of fitness for pregnancy cannot be satisfactorily undertaken in less than six months after the operation.

Mass Radiography Campaign.—In Edinburgh 190,000 persons participated in the city's mass radiography scheme. Of these 6,600 were recalled for a larger film, and of these 1,650 were referred to a chest clinic for further investigation; 44 had active pulmonary tuberculosis requiring treatment, and of this number 20 were hospitalized. The figures indicate that about 1 in every 4,320 persons examined by mass radiography in Edinburgh required active treatment for pulmonary tuberculosis.

Smoking and Peptic Ulcer.—Doll and co-workers (*Lancet* 1:657, 1958) investigated the smoking habits of patients with peptic ulcer and compared them with those of a control group of patients with diseases believed to be unrelated to smoking. Each ulcer patient was matched by two control subjects for sex, age, place of residence, and in the case of men for socioeconomic class. Data were finally obtained from 327 patients with gastric ulcer, 338 with duodenal ulcer, and 1,143 controls. The proportion of nonsmokers was less in both sexes among the ulcer patients than among the controls. In contrast no appreciable differences were found between the proportions of heavy smokers. More of the male gastric ulcer patients than of their controls had started to smoke before the age of 15, and fewer had begun to smoke at the age of 30 or more. The proportion of those who smoked only cigarettes was higher in patients with peptic ulcer than in the controls. The authors pointed out that these data could be interpreted in various ways: The presence of an ulcer might stimulate a desire to smoke; some psychological factor might predispose to smoking

and to peptic ulcers; or smoking might be the primary factor and might contribute directly to the production or maintenance of an ulcer in some patients.

Because more than one explanation is possible further evidence was obtained by a clinical trial. Inpatients with gastric ulcers who were regular smokers were divided into two groups on admission. One group was advised to stop smoking, and the other was not. Both groups were given the same medication and treated by bed rest for four weeks. The size of the ulcer was reduced by two-thirds or more in 75% of patients advised to give up smoking, the average reduction being 78%. Among the 40 patients in the group not advised to give up smoking the size of the ulcer was reduced by two-thirds or more in 58%, with an average reduction of 56.6%. The average reduction in size of the ulcer was greater in those patients following the advice not to smoke at all than in those who reduced the amount of smoking but did not stop. The average gain in weight was not significantly different in the smoking and nonsmoking groups. It was concluded that in some patients smoking interferes with the healing of a peptic ulcer and helps to maintain its chronicity.

Prophylaxis and Treatment of the Common Cold.—Skeptical of the value of autogenous vaccines in the prophylaxis of the common cold, but acceding to requests for them from chronic sufferers who maintained that they were of value, Dr. J. Ritchie (*Lancet* 1:615, 1958) carried out a controlled clinical trial among 200 volunteers, of whom 120 received an autogenous vaccine and 80 carbolized saline solution as a control. To exclude the possibility of bias information was sought on age, sex, years of service, association with children, and smoking habits. The only one of these that showed an appreciable difference in distribution between the vaccinated and control groups was the proportion of smokers. Smokers and nonsmokers were equally distributed in the vaccine-treated group, while in the control group nonsmokers outnumbered smokers almost two to one. The organisms found on culture of nose and throat swabs were mainly Streptococcus viridans and Neisseria catarrhalis, with a few staphylococci and some diphtheroids. The vaccines were made to a strength of 500 million organisms per milliliter, and injections were given once a week for eight weeks. The first injection was 0.1 ml., the second 0.3 ml., and the third and subsequent injections were 0.5 ml. Colds were classified as full or unmodified, mild, and prodromal. Of the volunteers, 184 completed the course of injections, 109 in the treated and 75 in the control group. The incidence of colds per month during the injection period was five times as great in the control group as in those vaccinated. Time lost from work through colds and upper respiratory infection was also greater in the controls. The percentage of colds passing from the prodromal to the fully developed stage was 13 in the treated group and 62 in the controls.

Ritchie made a further trial of the effectiveness of the broad-spectrum antibiotics in reducing the duration of the common cold. This was done on the assumption that most of the secondary symptoms are due to enhanced virulence of the patient's normal nasal and pharyngeal flora following depression of the body's resistance by the common cold virus. Sensitivity tests were done on the bacterial flora of the saliva. At the onset of prodromal symptoms each volunteer was given either a placebo tablet of lactose, if in the control group, or, if in the treated group, a 15-mg. tablet of tetracycline, oxytetracycline, or chlortetracycline. The antibiotic was chosen according to the saliva sensitivity tests. From October to April, 581 volunteers received short-term antibiotic treatment of two tablets a day for three days. The 338 controls were given inert tablets in the same dosage. In the treatment group the number of patients in the prodromal stage reported was 287 (49%) of which 22 (7%) went on to full colds. In the control group the patients in the prodromal stage numbered 182 (54%), of which 87 (48%) went on to full colds. These figures corresponded to 4 colds per 100 in the treated and 26 per 100 in the untreated subjects. Ritchie considered short-term antibiotic treatment justified to cut down the effects of the common cold, particularly in industry. The small dosage given had no permanent effect on the sensitivity of the pharyngeal bacteria nor on the proportions of the various species.

Food Poisoning from Potatoes.—Although potatoes have rarely been found to be a cause of food poisoning, Davies and Parry (*Lancet* 1:684, 1958) traced an outbreak of staphylococcic food poisoning to potatoes infected after cooking. Eight persons developed acute diarrhea and abdominal pains with vomiting one-half hour to four and one-half hours after a meal in a restaurant. Staphylococcus pyogenes var. aureus was found in the feces and vomitus, a finding which, coupled with the short incubation period, established the diagnosis. The only food eaten by all the victims was French-fried potatoes. Eleven of those handling the food in the restaurant were found to be carrying staphylococci in the throat, nose, intestines, or hands. The organisms were recovered from the hands, chin, and feces of one of the cooks. Although no infected potatoes were found, it was ascertained that they were prepared by the infected cook. Tests showed that although cooking potatoes destroys any contaminating staphylococci, they may readily become infected afterwards. Another possibility was that heat-stable Staphylococcus enterotoxin formed in infected potatoes during their preparation.

CORRESPONDENCE

BCG VACCINATION

To the Editor:—The recent report of the Ad Hoc Committee of the Surgeon General of the United States, after weighing the advantages and disadvantages of BCG vaccination, states: "It is believed, however, that the advantages of vaccination outweigh the disadvantages for tuberculin negative persons who are exposed to a definite risk of infection, especially if they cannot be retested frequently with tuberculin." This committee recommended BCG vaccination for those groups recommended by the American Trudeau Society, the American College of Chest Physicians, the American Medical Association, and the Medical Advisory Committee of Research Foundation.

The specific groups recommended for BCG vaccination by the American Trudeau Society are (1) doctors, medical students, and nurses who are exposed to tuberculosis; (2) all hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis; (3) individuals who are unavoidably exposed to infectious tuberculosis in the home; (4) patients and employees in mental hospitals, prisons, and other custodial institutions where the incidence of tuberculosis is known to be high; and (5) children and certain adults considered to have inferior resistance and living in communities in which the tuberculosis mortality rate is unusually high.

There have been numerous inquiries from all parts of the United States as to where BCG vaccine may be obtained. In order to assist those interested, the following information is offered: BCG vaccine may be obtained by any licensed physician in the United States and its territories by writing to the laboratories of Research Foundation and the University of Illinois, the only institutions licensed to produce and distribute BCG in this country.

Sol Roy Rosenthal, M.D.
Research Foundation
70 W. Hubbard St.
Chicago 10.

MOUTH-TO-MOUTH AIRWAY RESUSCITATION

To the Editor:—The article on mouth-to-airway resuscitation by Safar and McMahon, in the March 22 issue of The Journal, page 1459, is of interest. I have used this simple principle in resuscitating infants since 1942 and find it uniformly satisfactory. Two other principles could be incorporated in the device described by Safar and McMahon. The lower end of the instrument should be shaped to fit into and to obtrude the esophagus. The mouthpiece needs a trap to stop interchange of secretions between patient and resuscitator, as used by De Lee. These points were described in an article published in the *American Journal of Surgery* (58:140-141 [Oct.] 1942).

An additional aid is to have a flow of oxygen directed at the nose of the person doing the resuscitation, thereby raising the oxygen content of the air blown into the patient's lungs. To my surprise, in an article published in 1817 by John King *(New York Medical Repository)*, describing the delivery of an abdominal pregnancy by vaginal incision, the following statement appears.

"The child appeared to be still-born, but not being certain of that, I inflated the lungs through a tube, and was pleased to find it had borne the brunt of the day, without any fatal event."

How long can a good idea remain unappreciated?

Leonard R. Thompson, M.D.
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San Pedro, Calif.

SANITARY AND ACCURATE METHOD FOR COLLECTION OF STOOL SPECIMENS

To the Editor:—In the study of the hemolytic anemias it is important to have an accurate knowledge of the quantitative fecal urobilinogen. To obtain this information it is essential that the stool specimens be collected accurately over a stated period of time. This is often a difficult task, both in the hospital and at home. The usual methods of trying to dip the specimens out of bedpans or toilet bowls are both messy and haphazard, while the direct use of a container is often beyond the scope of the patient.

The use of Saran Wrap has solved this problem. This material is obtainable in most grocery stores. It is transparent, pliable, tough, waterproof, and chemically inert. To obtain the stool specimen the patient is instructed to place a sheet of Saran Wrap beneath the toilet seat or over the bed pan, leaving plenty of slack. The specimen is then passed as usual. The toilet seat is raised, and by bringing up the four corners of the sheet of Saran Wrap and twirling them together the specimen can be lifted up and deposited in a jar or container. For weighing or other processing the technician can remove the Saran Wrap containing the specimen from the container without soiling the fingers or the surrounding area.

Carl Reich, M.D.
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BUSINESS PRACTICE

SELECTING YOUR INVESTMENTS

Carl Holzheimer, Chicago

The considerations and the opportunities available in selecting investments or the organization of a lifetime investment program is highly personal and involves many details ranging from family circumstances to the economy of the United States and the world; I can, therefore, touch on only a few brief highlights. I shall not address my remarks to the details of possible investment programs in the areas of stocks, bonds, and savings. Perhaps physicians, as skilled professional men, will be more sympathetic than a lay group, since I doubt whether any physician would feel comfortable if he were called on to outline the medical diagnosis and resulting treatments that 500 laymen might follow during the rest of their lives. The personal element is basic, and I would first suggest that no investment program is practical or meaningful, nor can it be continued, without some preliminary determinations.

Preliminary Considerations for Investment

Personal Needs for Cash.—The first determination is one relating to personal needs for cash. I am not talking about piling cash in a safety deposit box but, rather, about bank balance—the bank balance out of which you and your family draw their monthly living. You, and you alone, must decide how big this should be. It is a matter of your own comfort. Some persons feel that any money in a checking account above a month's requirements and perhaps the minimum balance that the bank may demand is wasted. The money should be working. Others feel that they cannot be comfortable unless they have a big bank balance. How big? Well, perhaps three months, six months, or, in some cases, a year's living requirements. Beyond that, it becomes a bit unnecessary, and, if your personal feelings seem to require greater permanent cash figures, then perhaps your investments should follow a course rather different from the one I propose to outline. But the cash determination is point number one.

The Insurance Program.—In second place are the questions relating to the insurance program. Basic family protection should precede moneys devoted to investments of a fluctuating character, and insurance may be the most logical means through which specific needs can be fulfilled. You may have children for whose college education you want to provide, and they may be young enough to make that provision practical and relatively inexpensive through insurance. But, if it should be your choice to handle these obligations through insurance, set a principal insurance figure substantially larger than the costs that are now contemplated, perhaps as much as 50% higher.

The Individual Personality.—As we approach the field of investments itself, nothing is more important than an honest determination of your own personality. I refer, of course, only to those phases of your personality that relate to financial matters. In the investment counsel profession (in which I have spent my business life), we find many psychosomatic investors. There are people, and I confess that some are among your own profession, who are uncomfortable when assets are quoted in fluctuating figures. The same person who will buy a piece of real estate and never give it a second thought as long as it remains occupied and rent-producing will feel alarmed if he picks up the financial paper and finds his 100 shares of General Motors stock have gone down two points. I do not mean this to be accepted as a facetious comment. I am deadly serious. Your own peace of mind, your comfort, your ability to concentrate on your almost overwhelming medical problems, and your need to give your patients 100% plus of your time and mental accomplishments are so vital that you should make certain that nothing—certainly no investment procedure—upsets or disturbs them. You might be better off with $100,000 invested in real estate, which, as a matter of honest fact, can fluctuate $25,000-$30,000 in a few weeks, as against General Motors stock; you cannot escape the fact that General Motors stock went up or down a point, but you can be utterly oblivious to what you might sell your real estate for. If you feel, after genuine soul-searching, that you are prepared to arrange your investment future as coldly, as scientifically, and as impersonally as you do your medical research, then the remarks I now propose to make may be of some help.

Practicality and Investment

In my office in Chicago, the members meet as a partnership group quite frequently with no other purpose than the purpose of developing the most practical, the most realistic, and the most intelligent answer to the question of selecting others' investments. We are constantly aware of the fact that our

Investment consultant and partner, Security Supervisors.
Read before the Doctor and His Practice Forum, Washington, D. C., March 27, 1958.

decision, however accurate it may be, is a temporary decision, and I cannot overstress the importance of the fact that investment decisions are temporary. Perhaps, in this respect, they do not differ too drastically from your own decisions in your diagnostic office. You decide that the patient has such and such a condition, and your examination may give you strong reason for believing that certain medical characteristics will predominate, if not throughout his life, for a very extended period. But you would be quick to tell him that your examination and your diagnosis provide no guarantee against an infectious invasion tomorrow morning. Nor can any investment decision avoid the danger that a similar invasion will upset the best laid plans.

These plans must be related first and foremost to the world in which we live. Any reliance on historical tradition is dangerous and almost certain to fail. Once upon a time it was believed that one bought bonds until he was satisfactorily provided for and then, perhaps, "speculated" in stocks. I have chosen the words intentionally. We have grown up (most of us) in an environment where our fathers and our grandfathers could conceive neither of the managed economies with which we daily cope nor of a situation in which bonds might be more "speculative" and stocks might be more "conservative." Most of the world, certainly most of the European countries and the financiers and the rich men of the Orient, have not been without traditions that include money as a major speculative element. Relative stability and convertible money historically bred in our fathers and our grandfathers the conviction that a dollar was a dollar and that the further we moved from dollars the more speculative we were. They could not conceive of a world in which the conservative Republican President, having spent his entire public political life insisting on balanced budgets and sound currency, said in a recent press conference that, under present circumstances, a deficit might be preferable to higher taxes.

You have heard so much about inflation that the word loses meaning, and I do not propose (if I can possibly avoid it) to add confusion. Let us be very simple about it. We have been living in a world where many considerations of a political nature (or, if you prefer, of a social nature) have taken precedence over what used to be called sound economics. We have witnessed a perpetual increase in prices, which is one way of saying that we have been living through a steady and so far uninterrupted trend toward lower value for our dollar. I suggest that this trend will not be reversed quickly nor by any appreciable amount, and, in speaking with conviction on this point, I am not intending to ignore the current doubts regarding the 1958 outlook. I am urging that you consider, in setting up your investment program, the broad, apparently inevitable sweep of the world economy and America's participation in it.

You should divide your investments between savings accounts, bonds, and stocks, but I think the evidence so overwhelmingly unfavorable to investments in dollars that I would urge that your savings accounts and bonds be held to minimums, minimums related to the personal factors I discussed earlier and to the over-all insurance program that should be related to your family circumstances. Cash requirements, savings requirements in dollar terms, should not be piled one on the other to such a degree that you stand still while adding depreciating dollars to a pile that buys less and less. Major emphasis, in the judgment of my firm, should be placed in partnerships in American business, which means, as a matter of practice, that you should emphasize common stocks. Here is a problem, perhaps a dilemma, because you cannot buy common stocks as you buy Treasury bonds. They are not alike, and they require a diagnosis quite as thorough and quite as elaborate as one through which you put a clinical patient. If your investment funds are adequate, and in this sense adequate, while a somewhat flexible term, roughly means $100,000, you would be very well advised to seek professional investment counsel. It is expensive, as good medicine is expensive. It is the cheapest possible advice, as good medical work is the cheapest available.

If your problem relates to lesser sums, there is no ideal answer insofar as the selection of common stocks is concerned, but a reasonable compromise is available through the purchase of sizable, well-established, well-rounded investment trusts. Here, moneys are pooled, expert statistical management is provided, and the results are roughly average. But, in this sense, average is substantially better than the results likely to be achieved by a busy individual devoting spasmodic and unorganized time to security selection.

Beyond the professional management of money which is provided by either of the methods I have just suggested, you are left with reliance on a variety of financial firms, but I think it is individuals rather than firms. In any given bank or brokerage firm, you may find an above-average individual on whose judgment you can safely rely. I cannot give you the measurements to apply to such a man beyond those you can give me to apply to an individual physician; his maturity, his general reputation, and the regard in which he is held by others in the investment field are helpful clews. Most important is the reaction that develops as he visits with you and the degree to which he may provide that peace of mind and elimination of investment concern, on which your successful medical life in part depends.

Conclusions

We live in an age far different from the *laissez-faire* period of classical economics. It may be that we will face other economic calamities, but it is as sure as such things can be that they will not follow the 1929 pattern. We are unwilling, as a

people, to accept an orthodox follow-through of a consequential business decline without so upsetting government finances in attempts to prevent it that the further rapid depreciation of the dollar is likely to dominate the investment environment.

I urge you to avoid the momentary concerns about 1958 and set your program for a long, continuing inflationary trend. Develop your cash, your bonds, and your insurance for peace of mind. Commit all other assets to professionally managed stock investments in whatever way is most practical and conveniently available to you. Remember that, before the decline which is creating so much news got very far, the Federal Reserve Board changed its policy, the President changed his budget, and Congress changed from saving to spending. These matters are vital. They may well affect 1958 more favorably than we now think possible. They will surely dominate the future.

MEDICAL FILM REVIEWS

FOUR NEW FOREIGN FILMS ADDED TO A. M. A. MOTION PICTURE LIBRARY

Lung Resection: 16 mm., color, sound, showing time 83 minutes. Prepared by Dr. Jaroslav Prochaska in cooperation with Professor Dr. Jan Hromada and Dr. Jan Fisely, Prague. Produced in 1956 by the Studio for Popular Scientific and Teaching Films, Prague. Procurable on loan (service charge $4.00) from Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film begins with a discussion of the indications for pulmonary resection. X-ray pictures, including bronchograms, are used in differential diagnosis. Preceding an illustration of operative technique is a short discussion and presentation of type of anesthesia, position of the patient, and use of selected special instruments for the operation. The anatomy involved is described and demonstrated with the use of detailed animated diagrams. Operative techniques for pneumonectomy, lobectomy, and the various types of segmental resection are described and illustrated by the use of animated drawings, after which the actual operative technique is shown. This film will be of special interest to chest surgeons. It will also be useful in anatomy courses for senior medical students because of the excellent anatomic descriptions and demonstrations.

The Jugular Venous Pulse: 16 mm., color, sound, showing time 20 minutes. Produced in 1957 by the Wellcome Foundation Limited in collaboration with Dr. Paul Wood, O.B.E., M.D., F.R.C.P., University of London. Procurable on loan (service charge $3.00) from Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10.

The purpose of this film is to stress the wealth of information that is obtained clinically by observing carefully the wave form of the venous pulse, an art which has tended to become overshadowed by modern technical advances. It includes a demonstration of modern instrumental techniques used in the analysis of the wave form of the venous pulsation in the neck. The mechanism and the production of each of the component waves are considered, and, with use of a normal subject, it is shown that they may be easily recognized by observation at the bedside. Sir James MacKenzie's classical work on the venous pulse is described, and newer and more precise values are attached to this work. There is a complete physiological explanation of the venous pulse normally and under several pathological conditions. This is an excellent presentation, from both a technical and an educational point of view, and it is highly recommended for cardiologists, residents, interns, and medical students.

Structure and Function of the Middle Ear: 16 mm., color, sound, showing time 24 minutes. Prepared by Professor Ichiro Kirikae, M.D., University of Tokyo. Produced in 1956 by Iwanami Films, Tokyo. Procurable on loan (service charge $3.00) from Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10.

In this film, the structure and function of middle ears from lower vertebrates to mammals are comparatively observed. In the human middle ear, the vibration of the tympanic membrane and ossicular chain is observed by stroboscopic illumination. Also shown are the close connections between the minute structures of the ossicles, such as the bony fibers, the thickness of bony cortex, and the boundary stress distribution of ossicles, examined photoelastically. The fundamental purpose which this film might serve is to demonstrate by means of motion pictures under stroboscopic light the movements of the eardrum and of the conduction mechanism. This picture is useful as a teaching medium, since it gives a graphic demonstration of the action of the sound conduction mechanism. It also includes a demonstration of the lines of force as they are considered to be transmitted through the ossicular chain and a diagrammatic demonstration of the effects of contraction of the middle ear muscles on the auditory mechanism. The photography is outstanding. This film is highly recommended for students of otology as a visual asset in describing the sound conduction mechanism.

Hemorrhoids or Piles and the Early Detection of Rectal Cancer: 16 mm., color, sound, showing time 24 minutes. Prepared by A. Lawrence Abel, M.S., F.R.C.S., and H. Gordon Ungley, V.R.D., M.D., F.R.C.S., London. Produced in 1957 by Stanley Schofield Productions, London, for Warner Chilcott Laboratories. Procurable on loan (service charge $2.00) from Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10.

The purpose of this film is to present, graphically, a modern approach to differential diagnosis and treatment of external and internal hemorrhoids, with particular reference to the identification of associated pathological conditions of the anus and rectum. The introductory sequences define termi-

nology and review normal anorectal anatomy. The need for detailed history taking is cited, followed by techniques employed in examination—abdominal palpation, proctoscopy, sigmoidoscopy, and x-ray. Surgical treatment, dressing, and postoperative care of external hemorrhoids are shown, as well as the location of internal hemorrhoids, their stages of development, common complications, and prognoses in untreated or improperly managed cases. Appropriate surgical, mechanical, and chemical methods of treatment are outlined. There is no indication as to the underlying etiology of these problems; however, this is a good teaching film, and the photography is excellent. It is recommended for proctologists, general surgeons, and residents.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Failure to Heed Complaints of Patient.—This was an action for damages resulting from the alleged careless treatment of the plaintiff by the defendant physician. From a directed verdict in favor of the physician, the patient appealed to the Supreme Court of North Dakota.

The plaintiff, having suffered from a skin rash in his armpits for about 15 years, consulted the defendant physician. The defendant concluded that the plaintiff had contact dermatitis and prescribed for him a cream-like ointment composed of "Histadyl and Surfacaine." Following this office visit, the defendant did not hear from the plaintiff for about 20 months. The plaintiff testified that during this period he used the prescription only once; that it burned his skin, so he went back to remedies he had used in the past, such as Stag cologne, Pragmatar, and rubbing alcohol. Later he ran out of Pragmatar, and he tried the ointment again. It again increased his discomfort, so he put it back in his medicine cabinet and went out and bought a new supply of Pragmatar. The following month he again went to the defendant's office. He testified that he told the defendant, "Don't give me the same stuff you gave me before, because that drives my skin wild." The defendant denies that such a statement was made, and the prescription given was in fact the same as the first one. A few days later the rash had become worse and the plaintiff had to be hospitalized.

About four and one-half years after the plaintiff first called on the defendant, the plaintiff asked another doctor to make a patch test on him with a portion of the second prescription and it was then found that the plaintiff was allergic to Surfacaine. The defendant had not made any patch tests during the time the plaintiff was under his care. The expert witness for the plaintiff, however, did not testify that the defendant had failed to follow the standard of practice common to the locality. Furthermore, he did admit that Pragmatar could have been a factor in the plaintiff's skin problems.

On appeal it was argued by the defendant that the plaintiff cannot establish a cause of action for alleged malpractice without introducing evidence of a medical expert to show the standard of care and skill in the Grand Forks locality involving the treatment of the particular affliction with which the plaintiff was affected. While this is ordinarily true, said the Supreme Court, we do not have that situation before us in this case. Here the negligence or want of care of the defendant, if any, is based on the conflicting testimony of the parties. The alleged negligence or want of care of the defendant consists of his failure to heed the warning of the plaintiff, if in fact such warning was given, by giving him the same prescription that the defendant had previously given him and which the plaintiff claims he told the defendant he did not want as it "drives my skin wild." The negligence or want of care of the defendant, if any, is further based upon his failure to find out from the plaintiff what he had given him for his skin affliction in April, 1952, if he did not remember, or if he did remember what he gave the plaintiff, in failing to inquire as to what results were obtained, the plaintiff's warning indicating that the first prescription was injurious to his skin condition. If the warning was given, it was the defendant's duty to ascertain from the plaintiff how he had used the prescription and to generally obtain information from him that would constitute a basis for determining what medication or treatment the defendant should prescribe. This is particularly true, said the court, as the defendant knew that a certain percentage of individuals are allergic to Histadyl and Surfacaine. If the plaintiff gave the warning he claims, ordinary prudence would prompt the defendant to inquire into the alleged injurious or harmful results from the use of the prescription. This the plaintiff claims the defendant did not do. On the other hand, the defendant denies that the warning was given and insists that he did ask the plaintiff some questions before giving the second prescription.

Whether the warning was given or not, said the court, was a question for the jury. The conflict in the evidence as to the alleged negligence or want of care of the defendant is not in any way due to expert medical testimony. It was based on nontechnical matters. The case was therefore remanded for a new trial so that the jury would have an opportunity to pass upon the issues involved. *Stokes v. Dailey,* 85 N. E. (2) 745 (N. D., 1957)

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Cor Pulmonale in Pulmonary Tuberculosis: 38 Cases with Anatomic Verification. J. M. Boettner, G. D. Serna and L. C. Maas. Tórax **6**:241-248 (Sept.) 1957 (In Spanish) [Montevideo, Uruguay].

Autopsies performed on 62 persons who died of pulmonary tuberculosis revealed cor pulmonale in 38. These included 25 men and 13 women, between the ages of 20 and 40 years. There was hypertrophy of the right ventricle alone in 1 case, hypertrophy and dilatation of the right ventricle in 12 cases, and dilatation of the right ventricle alone in 25 cases. Hypertrophy of the right atrium was found in 34 cases, of the pulmonary artery in 13 cases, and of the left side of the heart in 8 cases. No significant lesions of the heart were observed. The tuberculous pulmonary lesions were very extensive in 34 cases and moderately extensive in 13. The type of pulmonary tuberculosis was exudative-caseous in 19 patients, mixed in 17, and fibrous in 2.

Cor pulmonale is the result of hypertension of the pulmonary circulation, either essential or secondary to circulatory or pathological pulmonary factors, with consequent overloading of the right ventricle, circulatory insufficiency, and eventual heart insufficiency. A clinical diagnosis is made by the appearance of dyspnea in patients with chronic or acute respiratory disease, accentuation of the second pulmonary sound on auscultation, a subxiphoid marked pulsation, a roentgen-ray image of increased size of the conus of the pulmonary artery, and an electrocardiogram showing hypertrophy of the right side of the heart. The changes of the heart observed by the authors at autopsy, in relation to the type of cor pulmonale, show that dilatation of the right ventricle alone is a characteristic of acute or subacute cor pulmonale; hypertrophy alone shows compensation, whereas both hypertrophy and dilatation show decompensation of a previously compensated cor pulmonale. The treatment of cor pulmonale consists of controlling pulmonary hypertention, either essential or secondary. Treatment of cardiac insufficiency is the same as that of any form of congestive heart failure. The results from either treatment are poor.

Alimentary Lipemia and Coronary Artery Disease in Two Racial Groups. A. M. Weissler, W. Shapiro and J. S. Gaskin Jr. J. Lab. & Clin. Med. **51**:355-358 (March) 1958 [St. Louis].

While some investigators have demonstrated abnormal elevations in fasting and postprandial plasma turbidity and chylomicron counts in patients with coronary artery disease, others have been unable to demonstrate such elevations. Alimentary lipemia is demonstrable to some degree in all normal individuals after a fatty meal. If the intensity of this phenomenon is related to the development of coronary artery disease, then it might be expected that populations manifesting a higher incidence of this disease would demonstrate a greater degree of postprandial lipemia prior to the development of overt disease. There is evidence indicating that the susceptibility to this disease among the Negro population in North Carolina is less than among the white population. The purpose of the present study was to ascertain whether such a racial difference in the incidence of myocardial infarction was present in a North Carolina Veterans Administration hospital and to compare tests of alimentary lipemia in groups of Negro and white patients. Studies were made on 26 white and 26 Negro male hospital patients, between 20 and 47 years of age and without evidence of gastrointestinal or cardiovascular disease. These patients had been following their usual dietary habits prior to hospitalization and were studied during the first week of their admission while they were subsisting on 3,000 calorie diets (150 Gm. fat). The studies were begun the morning after a 10-hour fast. Two control samples of venous blood were drawn into heparinized syringes through indwelling needles. After this, each subject was given 100 ml. of 10% cream per square meter of hypothetical body surface area, and plasma specimens were taken at hourly intervals. No other food was allowed during the 6 hours of observation.

Optical densities were read against a water blank in a Beckman spectrophotometer at a wave length of 650 μ after the plasma was separated by centrifugation at 2,500 rpm for 15 minutes. The control and hourly values were plotted linearly and the areas under the curves derived by planimetric in-

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tegration. The group means for control and hourly values, as well as areas under the curves, were compared. When the hourly mean optical densities were compared, no significant differences between the white and Negro groups were noted. Similarly, the mean values for the areas under the lipemia curves were not significantly different. In an attempt to distinguish a possible difference in the occurrence of individual abnormal responses between the 2 groups, those subjects having 2 or more hourly levels greater than the mean +2 standard deviations were separated. Three white and 4 Negro patients fell into this group. Under the conditions of the present study, the 2 groups of patients behaved as though they were culled from the same population. The relative incidence of acute myocardial infarction among white and Negro male patients in North Carolina was estimated from the 280 cases of documented myocardial infarction at the Durham Veterans Administration Hospital; corrected for the relative admission rates, it was found to be 2.2 white to 1 Negro. The data are not consistent with the view that intensified alimentary lipemia is a significant predisposing etiological factor in coronary artery disease.

The Prognostic Value of the Tuberculin Test. M. Pardo de Tavera, E. de Leon, S. S. Lapuz and others. Bull. Quezon Inst. 4:231-235 (Dec.) 1957 [Manila].

Cases included in this study were picked from those of 1,909 youngsters admitted to the children's pavilion of the Quezon Institute. Seventy children of this group were selected, and these were divided into 2 groups. Group 1 included 31 patients who persistently gave negative reactions to the tuberculin test, despite the unequivocal existence of tuberculosis. The 39 children of group 2 gave a negative tuberculin reaction at the beginning, although they had tuberculosis, but converted to a positive reaction during the course of antituberculous therapy. All the 31 children in whom the tuberculin test remained negative died, whereas there were only 3 deaths among the 39 patients in whom the test became converted to positive. A persistently negative reaction in the face of active tuberculosis signifies a decidedly unfavorable prognosis.

Conversion of the tuberculin test from negative to positive during chemotherapy in tuberculosis is a good omen. Conversion has been found to precede or occur simultaneously with roentgenographic and clinical improvement in a majority of studied cases. In 33 patients improvement was evident at the time of conversion, in 3 patients conversion preceded clinical improvement, and in 2 others no improvement at all was noted during or after conversion. The authors invite confirmation or negation of the prognostic value of the tuberculin test during chemotherapy. This study affirms its worth as a prognostic tool.

The Decline of Rheumatic Fever: Recurrence Rates of Rheumatic Fever Among 782 Children for Twenty-One Consecutive Calendar Years (1936-1956). M. G. Wilson, Wan Ngo Lim and A. McA. Birch. J. Chron. Dis. 7:183-197 (March) 1958 [St. Louis].

The records analyzed were designed for documentation of the natural history of rheumatic fever. They were consecutive records of 782 children, born after 1916, who were registered in the cardiac rheumatic clinic of the New York Hospital and who had been under uniform, continuous, close medical and social service supervision. There were 370 males and 412 females, and analysis of the observations on them covered a time span from 1936 to 1956, with an age span of 2 to 20 years. For the majority of patients, clinic visits were made on a monthly basis, and all were encouraged to phone in case of any illness. Over the years, numerous clinical investigations were under way, requiring frequent clinic and home visits. During this 21-year period, 782 children who represented 5,664 person-years had a total of 613 recurrences, exclusive of 15 multiple recurrences within the same calendar year, giving a crude over-all rate of 10.8% per year. Twenty-one consecutive annual recurrence rates at ages 2 to 20 gave a mean rate of 9.8% per year. There was a statistically significant downward trend, with a slope of —0.4% per year, in the annual recurrence rates from 1937 to 1956. The mean annual recurrence rate for those with a recent attack (within 2 years) was 21.4 per 100 person-years, 3 times the rate of 6.0% for children free from a rheumatic attack for 2 or more years. There was a significant decline in the recurrence rates in both groups over the years.

A comparison of age-specific recurrence rates for the periods 1916-1943 and 1944-1956 revealed lower rates at almost every age in the latter period. The approximate chance of a recurrence in any one year for all children, 6 to 13 years of age, declined from 1 in 4 before 1944 to 1 in 7 between 1944 and 1956, and for ages 14 to 20 the chances fell from 1 in 16 to 1 in 35. The general improvement in the standard of living in Greater New York City over the past 2 decades was reflected in the socioeconomic composition of the clinic population: (*a*) the relative percentage of patients in the best environmental group increased, and those in the poorest socioeconomic status decreased; (*b*) recurrence rates were generally lower in the more favorable environmental groups; and (*c*) recurrence rates for the poorest environmental group did not reveal the decline noted for the total clinic population. The initial decline in recurrence rates antedated the

antimicrobial era, and the over-all decline did not appear to be sharper during 1952-1956, when antibiotics were administered to patients either during febrile illness or as continuous prophylaxis. The decline in recurrence rates of attacks of the major manifestations of rheumatic fever coincided with the progressive improvement in socioeconomic status for patients observed in this clinic.

Preventive Techniques of Rehabilitation for Hemiplegic Patients. N. K. Covalt. GP 17:131-143 (March) 1958 [Kansas City, Mo.].

Techniques for restoring physical activity and independence to the hemiplegic patient must be instituted during the acute phase after a cerebral vascular accident. Unless the lesion is a minor or transitory one, deformities will start to develop within the first 2 or 3 days. Preventive procedures must be instituted, even though it may be impossible to determine for several days whether the patient will live or die. Any nurse, aide, or attendant caring for the patient at home can be instructed in these procedures. The majority of patients can be made almost, if not completely, independent within the first month after the stroke. When no program of any type has been instituted until a month, or many months, after the onset of the illness, physical rehabilitation requires long weeks of training and the assistance of physical and occupational therapists before deformities can be corrected. The types of deformities that follow cerebral vascular accidents are basically the same, irrespective of the cause or extent of the lesion or whether flaccid or spastic paralysis is present.

The author comments on various hemiplegic deformities, and measures to ward off such deformities are explained with the aid of diagrams. Incorrect elevation of head will result from pillows extending below the shoulders. This flexes the upper thoracic as well as the cervical vertebrae and rolls the shoulders forward. As a result, lung capacity is decreased, and the pectoral muscles are shortened. This tightens the shoulder girdle and limits arm abduction. The diagram showing the correct position for lying on the back shows the body flat, without pillows, and the feet placed against the footboard. Other diagrams show the following procedures: correct lying on the side; support for passive motion of the upper and lower extremities; moving about in bed from a back-lying position; moving the affected leg; turning on the side to reach the bedside table; coming to a sitting position on the side of the bed; lying in the face-down position; exercises in this position; moving from bed to chair; and retraining in walking.

The hemiplegic patient should never be allowed to forget that he still has 1 good arm and 1 g od leg. These unaffected extremities will quickly weaken if they are not used actively. A basic rule in all rehabilitation is never to do passively for the patient those things that he can do, or can learn to do, actively for himself. Everything that is done for any patient puts him another step closer to becoming weaker and more helpless. Within the first 2 or 3 weeks, perhaps even at the end of the first week, if there is no respiratory distress, it is wise to teach the patient to turn over and lie in the prone position at least once or twice a day. This is restful and relaxing to the back and hip extensors. As soon as the patient learns to get into a wheel chair, he should learn to push it himself. Only the 1-arm-drive chair is really practical for any person who has the use of only 1 arm. The use of a wheel chair is only temporary for the majority of hemiplegics who are given the opportunity for early rehabilitation. Patients with mental confusion may be confused only because nothing of interest has been offered to attract their attention. Many who appear to have definite mental deterioration often clear up remarkably when they start attempting to try to care for themselves. Those with definite mental deterioration can be retrained in many of the simplest of their old habit patterns, and so become less of a burden.

Congenital Biologic False-Positive Serologic Test for Syphilis. J. F. Cannon. A. M. A. Arch. Int. Med. 101:620-622 (March) 1958 [Chicago].

Biological false-positive reactions are frequently observed in patients with vaccinia, infectious mononucleosis, malaria, leprosy, upper respiratory diseases, yaws, pinta, Colorado tick fever, relapsing fever, lymphogranuloma venereum, chancroid, measles, chickenpox, atypical pneumonia, infectious hepatitis, rat-bite fever, and disseminated lupus erythematosus. In fact, any febrile illness or immunization is a potential cause of false-positive tests. No patient who has recently had a febrile illness or immunization should be given a diagnosis of syphilis on the basis of serologic tests alone. A false-positive serologic test should be considered in all patients whose marital partners have negative serologic reactions. In all patients in whom there is a possibility of a false-positive serologic test, a careful history should be taken as to exposure, symptoms of intercurrent infection, and immunization, and a physical examination should be done for evidence of other etiological factors.

The cause of a false-positive reaction cannot always be determined. The author presents a family in which only the females had positive reactions to syphilis; the male members showed consistently negative tests. The positive tests were of low titer, and the results varied from time to time from positive to negative. The Treponema pallidum complement fixation test was positive in 2 examinations in which the serologic tests were negative. The Treponema pallidum immobilization test was always

negative in this family. Therefore, the author thinks that the Treponema immobilization test should be performed whenever the Treponema complement fixation test is positive, so as to avoid an erroneous diagnosis of syphilis in patients with a congenital tendency to false-positive serologic reactions.

Primary Chronic Interstitial Nephritis (Pyelonephritis): Clinical, Experimental and Aetiological Observations. O. Gsell, H. K. v. Rechenberg and P. Miescher. German M. Month. 3:37-43 (Feb.) 1958 (In English) [Stuttgart, Germany].

The authors report on 22 women and 6 men, between the ages of 30 and 65 years, with primary chronic interstitial nephritis (pyelonephritis). The disease was caused in 22 patients by prolonged and excessive ingestion of acetophenetidin (Phenacetin) or acetophenetidin-containing analgesics. Of the remaining 6 patients, 1 had multiple myeloma with plasma-cell infiltration of the kidneys, 3 had chronic extrarenal tuberculosis, 1 had small multiple cysts with contracted kidneys, and 1, a chronic alcoholic, had an unilateral malformation of the kidney. Thus, in 80% of the 28 patients the chronic interstitial nephritis was an exogenous disease which could have been prevented. The total intake of acetophenetidin ranged from 10,000 to 200,000 tablets taken over a period of 7 to 15 years, with an average daily dose of 7.2 tablets, equivalent to 1.8 Gm. of the drug. At the time the clinical diagnosis of chronic interstitial nephritis was made, each of the 22 patients had taken an average total dose of 37,000 tablets or about 1 kg. (2 lb.) of the drug.

Three stages of the disease caused by the prolonged excessive intake of acetophenetidin were observed. A latent stage, the clinical diagnosis of which was not easy, was followed by a second well-defined stage of renal tubular insufficiency with normochromic anemia, polyuria, hyposthenuria, azotemia, and acidosis. It was often associated with electrolyte disturbances but not with a rise of blood pressure. The latter occurred only in the terminal stage of the disease, that of contracted kidney with renal failure. An inquiry made during the past year among patients of the medical polyclinic of the University of Basel, Switzerland, revealed that 33 patients had taken excessive amounts of acetophenetidin for prolonged periods. Of these 33 patients, 7 showed no clinical evidence of renal damage, 9 showed increased erythroclasis, and 17 had interstitial nephritis. The erythrocyte survival time was measured in all 33 patients and was markedly shortened in the second and third groups, depending on whether these patients had nervous symptoms only or showed signs of sulfhemoglobinemia or had acidotic renal insufficiency. A shortened erythrocyte survival time was produced in rabbits by prolonged feeding of acetophenetidin or acetophenetidin-containing compounds, but it has not been possible to reproduce the nephritis experimentally. It is suggested that the superimposed urinary infections which were present in 19 (60%) of the 33 patients, particularly cystopyelitis, may favor or precipitate the occurrence of interstitial nephritis.

Treatment of acetophenetidin abuse varies with the stage of the disease. In the first stage, social care and the prevention of further ingestion of the drug are important. Should the general practitioner be unsuccessful in his efforts, psychiatric advice should be sought and institutional treatment may become necessary. In the second stage, large doses of vitamin C and iron should be administered. Treatment is symptomatic and supportive once interstitial nephritis has occurred, and the infections of the urinary passages must be combated systematically. Prophylaxis of this new type of drug addiction might be theoretically simple, but such prevention is difficult to practice unless it has the assistance of mental hygiene in the broadest sense of the term.

SURGERY

Surgical Considerations in Repair of Ventricular and Atrial Septal Defects Utilizing Cardiopulmonary Bypass: Experience with 104 Cases. D. A. Cooley, J. R. Latson and A. S. Keats. Surgery 43:214-225 (Feb.) 1958 [St. Louis].

The authors used cardiopulmonary bypass in 162 patients who were operated on for various lesions of the heart and great vessels. This report is primarily concerned with a description of the technical details of surgical repair of isolated ventricular and atrial septal defects based upon experience with 77 cases of the former and 27 of the latter. The pump-oxygenator system employed consisted of a Sigmamotor pump and a stainless-steel bubble-diffusion oxygenator. Two heads were used on the pump removing blood from the venae cavae and returning it to the arterial system in measured amounts. Although at first a DeWall-Lillehei disposable plastic tube oxygenator was used, recently a permanent device has proved satisfactory. This oxygenator can be assembled before being sterilized, and it has been siliconized. Defoaming of blood was satisfactory, and oxygen concentration was 95 to 100%. Oxygen was introduced into the oxygenator at a rate approximately 10 times the rate of flow of blood, and carbon dioxide was never used.

At the beginning of perfusion when the caval tape tourniquets were closed, the patients were made slightly hypervolemic to maintain systemic mean arterial pressure at approximately 60 mm. Hg and to ensure adequate venous return at the caval

catheters. Blood which was aspirated from the heart was collected in a calibrated chamber, and approximately equal amounts were returned to the patient. After the cavae were opened, the blood volume was restored to the preoperative level. Blood used for priming the system was drawn from donors on the day of operation. Light planes of general anesthesia were used for operations with cardiopulmonary bypass. Since the bubble oxygenator is an efficient device for removing all volatile anesthetics and carbon dioxide from the blood and since the priming blood in the extracorporeal system dilutes circulating nonvolatile drugs, the anesthesia presents many problems.

Once bypass was begun and the heart was empty, the lungs were allowed to deflate to provide maximum working space and quiet in the thoracic cavity. No difficulty was encountered in reexpanding the lungs after perfusion. Because of the bleeding tendency from the heparin effect immediately after perfusion, transfusion was continued at a moderate rate during closure of the incision. Cardioplegic agents were used routinely in repair of ventricular septal defects and in a few complicated atrial defects. Potassium citrate was the most effective cardioplegic.

The surgical technique is explained with the aid of drawings. There were 14 deaths among the 77 patients operated on for ventricular septal defects. The death rate was highest (35%) in the 20 infants less than 1 year of age, but in view of the poor physical condition of these infants, a salvage of 65% was gratifying. In the survivors functional results were satisfactory. There were 2 deaths in the 27 patients operated on for atrial septal defects. Both patients, aged 50 and 42 years, respectively, had advanced stages of cardiac distress before operation. Patients operated on for atrial septal defects were older than patients with ventricular defects because, as a rule, atrial defects do not cause severe disability in early childhood. The authors are convinced that cardiopulmonary bypass is superior to closed, semiclosed, or open hypothermic procedures, since it provides the extra margin of safety and sufficient time to repair all types and sizes of atrial defects.

Traumatic Rupture of the Spleen from Nonpenetrating Injuries. L. Parsons and J. E. Thompson. Ann. Surg. **147**:214-223 (Feb.) 1958 [Philadelphia].

This report is concerned with 26 patients with splenic rupture caused by nonpenetrating injuries, admitted to Roosevelt Hospital, New York, from 1941 to 1956. Six patients with penetrating injuries of the spleen were also admitted, giving a total of 32 cases of splenic laceration. During this period, 64 splenectomies were performed for conditions primarily in the spleen, 29 for splenic laceration due to trauma, and 35 for other conditions. The incidence of splenic rupture from nonpenetrating injury and resulting splenectomy has remained relatively constant from year to year. The spleen seems to be the abdominal organ most commonly injured from nonpenetrating injuries to the trunk. Its location and anatomic features are primarily responsible for its susceptibility to injury from external forces and from abdominal surgery directed toward neighboring organs. The adult male in his 3rd and 4th decade of life shows the greatest predisposition to this injury. Automobile accidents are the commonest cause of splenic rupture. Falls, such as occur in the normal activities of everyday living, are the next most common cause.

No evidence was found of spontaneous rupture of the normal spleen. Injuries to the left kidney and rib-cage fracture were the most common associated injuries. "Delayed rupture" may result from rupture of a subcapsular hematoma or exacerbation of hemorrhage that was initially controlled by the tamponade effect of clotted blood. The treatment for suspected splenic rupture is celiotomy. Splenic laceration requires splenectomy. Mortality among patients with rupture of the spleen is dependent on the number and nature of associated injuries and on the delay in instituting proper therapy. Shock, unresponsive to treatment, does not contraindicate surgical treatment.

Myocardial Revascularization: A Comparison of Internal Mammary and Subclavian Artery Implantation in the Laboratory. M. C. Fuquay, L. S. Carey, E. V. Dahl and J. H. Grindlay. Surgery **43**:226-235 (Feb.) 1958 [St. Louis].

Implantation of the internal mammary artery was performed in 25 dogs by dissecting the artery free of the chest wall from the 2nd or 3rd to the 6th or 7th intercostal space on the left. The artery was ligated and divided at the level of the 7th rib, and the proximal portion, with 2 to 4 freely bleeding intercostal branches 2 to 6 mm. in length, was drawn into a previously made tunnel in the wall of the left ventricle. The tunnels varied between 2.5 and 3.5 cm. in length and were at a depth in the myocardium approximately midway between the epicardium and the endocardium. Implantation of the subclavian artery was performed in 12 dogs after dividing the vessel distal to its 4 branches and drawing the free portion of the artery, with its branches freely bleeding, into a tunnel in the left ventricle. In this procedure the branches were 0.5 to 1 cm. in length. In both procedures the distal end of the implanted vessel was ligated and attached to the epicardium by a cotton stay suture.

The results suggested that implantation of the internal mammary or the subclavian artery into the myocardium of the dog will afford some protection against death when the descending branch of the left coronary artery is ligated. There is no marked

difference between the 2 procedures in the ability to protect against death. However, implantation of the subclavian artery appears to offer greater protection against the occurrence of infarction. The subclavian artery is more likely to remain patent after implantation than is the internal mammary artery, as indicated by the percentage of each group in which patency was demonstrated. Histological studies revealed a greater degree of obliteration of the lumen in the internal mammary implant owing to proliferation of the intima. A larger proportion of patent implants in the surviving animals of the internal mammary group, as compared with the nonsurvivors, indicates that survival depends to some degree upon a patent implant. The subclavian artery appears to offer better opportunity for the development of collateral channels than does the internal mammary artery, as shown by roentgenograms made after injection of contrast medium and vinyl acetate casts of the implanted vessels in both groups. As stated previously, definite conclusions could not be drawn regarding the actual size of the collateral vessels. However, while there is no doubt that collateral channels exist, it must be concluded that they are of a magnitude that will allow only relatively small blood flow at normal pressures. Flow determinations performed in each group of animals indicated that implantation of the subclavian artery might allow a greater volume of blood flow to the heart than implantation of the internal mammary artery.

Dumb-Bell Ganglioneuromata of the Spine with a Report of Four Cases. R. H. Shephard and D. Sutton. Brit. J. Surg. 45:305-317 (Jan.) 1958 [Bristol].

The authors reviewed the literature on dumbbell ganglioneuroma and found reports of 11 cases. They present detailed histories of 4 additional patients with this type of tumor, and since no special search was made for their own 4 cases, they feel that such tumors probably occur more frequently than the literature would suggest. Ganglioneuroma of the nondumbbell type is, of course, much more frequent. A collected series of 260 cases of ganglioneuroma included only 9 (3.5%) of the dumbbell type. The term "dumbbell" is used to describe tumors of characteristic shape; the term "hour-glass" has also been used. The most usual variety has a smaller intraspinal component with a larger paraspinal component joined by a constricted portion or neck occupying the intervertebral foramen. Four groups of dumbbell spinal tumors have been differentiated: (1) tumors situated entirely within the spinal canal but being partly intradural and partly extradural; (2) intradural and extradural tumors with a paravertebral extension; (3) extradural and paravertebral tumors; and (4) foraminal and paravertebral tumors. A tabulation of the main features of 15 patients with dumbbell ganglioneuromas of the spine available for study revealed several significant features: 1. The anatomic localization of the lesions is predominantly thoracic or thoracolumbar. 2. Most of the patients showed an onset of symptoms in infancy (6 cases) or childhood (4 cases); this is in marked contrast to dumbbell neurofibromas in which the onset of symptoms is usually in adult life. 3. The tumors are benign, and provided that operative removal is undertaken before irreversible changes have been induced by the cord compression, the prognosis appears relatively good. Ganglioneuromas are tumors of the sympathetic nervous system.

Three basic types of tumors of the sympathetic nervous system have been classified, each varying in degree of malignancy and each being derived from a different cell type: (1) neuroblastoma, derived from neuroblasts and highly malignant; (2) chromaffinoma or paraganglioma, derived from pheochromoblasts, with about 15% becoming malignant; and (3) ganglioneuroma, derived from adult ganglion cells and benign. However, it is possible for intermediate types to occur, and these form a 4th group of mixed tumors, which are thought to be derived from cell-nests and which may become malignant. If the intraspinal and paraspinal portions of the tumor have been removed, there is no recurrence. If the intraspinal portion only is removed, then further extension through the enlarged intervertebral foramen from the paraspinal portion may occur, producing recurrence of symptoms. Similarly, removal of a paraspinal tumor without recognition of a foraminal or intraspinal extension may be followed by paraplegia or regrowth of the paraspinal mass.

Eleven of the 15 patients with dumbbell ganglioneuroma were known to have had paraplegia. This is one of the most important presenting features and forms a disability for which urgent relief is required. In 11 of the 15 patients, the intraspinal portion of the tumor was extradural, in 2 it was intradural, and in 2 the site was not clearly stated. With dumbbell neurofibromas there is much more commonly an intradural component. This difference probably arises from the differing site of origin, ganglioneuromas arising from sympathetic ganglions or their primordia and neurofibromas from spinal nerves or their roots. The roentgenologic aspects that may permit a preoperative diagnosis are discussed. A radical policy toward treatment may be appropriate, especially in children, before irremediable neurological damage is produced.

One Hundred Colon Cancers. J. F. Bishop. J. Iowa M. Soc. 48:133-139 (March) 1958 [Des Moines].

Fifty-one men and 49 women, between 34 and 87 years of age, were operated on for cancer of the colon. In 60 patients the tumor was 15 cm. or less

above the anus and was considered to be rectal, in 36 patients the tumor was in the sigmoid, and in the remaining 4 the exact site of the tumor is not stated. Ninety-nine patients had adenocarcinoma, and 1 had a squamous-cell lesion. One hundred fifteen operations were performed, with 5 surgical deaths representing a mortality rate of 4.3%. Sixty-six per cent of the patients were in the 5th and the 6th decade of life. Bleeding was the most common first symptom. Fifteen patients were obviously incurable at the time of the operation, and 85 offered some prospects for a cure. Seventy-three did not require gastric suction in the postoperative period. Twenty-four of the 100 patients operated on had recurrences of their cancer within 4 months to 2½ years after the operation. Forty-two of 68 patients operated on 4 or more years ago in hope of a cure lived for at least 4 years; thus, the 4-year survival rate was 62%.

Surgical Treatment of Esophageal Hiatus Hernia: A Description of Some Important Details in the Technique of Repair. F. E. Johnson. Minnesota Med. 41:94-98 and 113 (Feb.) 1958 [St. Paul].

The author reviews observations on 25 patients who were operated on for hiatus hernia. On the basis of the symptoms and from the findings at operation, he differentiates 2 groups of patients. The first group includes those patients who had excruciating, deep, subxiphoid pain which bores directly through to the back or around both costal margins to the back. This pain appears suddenly, without warning, persists steadily at maximum intensity for varying periods, and then suddenly and completely disappears. Except for moderate epigastric voluntary muscle-guarding during the attack of pain, the physical examination and all laboratory and x-ray studies are normal. This type of hernia is frequently not recognizable by roentgenoscopy, and the diagnosis may have to be based on the characteristic clinical picture. Failure to realize this may lead to the unjustified diagnosis of psychoneurosis, or even to the erroneous removal of organs in a desperate attempt to bring relief to these patients. At operation the hiatus is usually found to admit 2 fingers into a preformed sac ıe finding of a preformed peritoneal sac is of prime importance, since by exerting moderate pressure one can normally insinuate 2 fingers into the esophageal hiatus. The excruciating pain associated with this small hiatus hernia can be best explained on the basis of visceral spasm involving the herniated portion of the stomach. The problem here is the mechanical one of herniation through an abdominal wall defect.

The symptoms in the second group of patients, with the possible exception of gastric ulcer, are due to reflux esophagitis. They include retrosternal burning (heart burn), eructation, dysphagia, vomiting, flatulence, gastrointestinal bleeding, and esophageal stricture. In this group, the diagnosis is made by the roentgenologist somewhat more easily, but 2 or more roentgenologic examinations may be necessary to visualize the hernia. At operation, the hiatus tends to be slightly larger and frequently admits 3 fingers into a preformed sac. This group of patients presents the double problem of a diaphragmatic defect and incompetence at the esophagogastric junction. These problems are both mechanical.

Experimental work suggests that the acute angle of insertion of the esophagus into the stomach is the factor of importance in maintaining the competence at this union. The author cites additional circumstantial evidence to support this experimental study: 1. In careful dissection of the esophagogastric area in autopsy specimens, it was found that in the presence of a significant hiatus hernia there tended to be effacement of the acute angle of insertion of the esophagus to the stomach as compared with those specimens in which the esophageal hiatus was normal. 2. A real clinical test of the importance of the acute angle of esophagogastric union in making this junction competent is presented by those patients who have had a resection of the esophagus. In 5 such patients an attempt was made to restore the normal esophagogastric angle. Postoperatively these patients had no clinical symptoms of regurgitation, and roentgenologically the union was competent in spite of the fact that it was now impossible for a "lower esophageal sphincter" or "a diaphragmatic pinchcock" to function.

The Solitary Pulmonary Nodule: A Review of 236 Consecutive Cases, 1944 to 1956. R. R. Taylor, L. N. Rivkin and J. M. Salyer. Ann. Surg. 147:197-202 (Feb.) 1958 [Philadelphia].

At Fitzsimons Army Hospital in Denver attempts to separate malignant and nonmalignant disease presenting as a solitary pulmonary nodule on the basis of history, sex, age of the patient, roentgenograms, physical findings, skin tests, and laboratory procedures presented the usual difficulties. An analysis was made of the records of 236 patients ranging in age from 17 to 74 years and having clinically undiagnosed solitary intrapulmonary lesions varying in size from 1 to 6 cm. on roentgenograms. These patients, including 208 men and 28 women, had been operated on over a 12-year period. One of the patients died after thoracotomy (a surgical mortality of 0.4%). Histological studies revealed granulomas resulting from tuberculosis or fungus infections or of undetermined etiology in 183 (or 77.6%) of the lesions, malignant tumors in 23 (or 9.7%), benign tumors in 10 (or 4.2%), and miscellaneous lesions, such as cysts, abscesses, fibrosis, and infarction, in 20 (or 8.5%).

The 23 patients with malignant tumors included 17 with bronchogenic carcinoma, 1 with alveolar carcinoma, 2 with metastatic carcinoma, and 3 with bronchial adenoma.

Military hospitals consistently show a somewhat lower incidence of primary pulmonary malignancy among patients with solitary pulmonary nodules than do civilian hospitals. The authors believe this difference to be due to (1) the lower age groups, (2) the higher frequency of pulmonary mycotic infections seen in military hospitals, and (3) distortion introduced into some series by including large intrapulmonary masses which give a much higher incidence of tumor. On the basis of the data obtained in this study, the following conclusions are drawn, particularly with regard to military hospitals. The patient with an undiagnosed solitary intrapulmonary nodule has about a 3-out-of-4 chance of having a granuloma and a 1-in-10 chance of having a malignant tumor. If all cases with any calcification or lamination are excluded from consideration, the chance of malignancy increases to 1 in 8. If the lesion does not have sharp distinct borders, yet still appears as a nodule, the risk of malignancy increases to 1 in 2. The age-group distribution in this study would indicate a malignancy risk rate of 2.5% at 20 to 29 years of age, 6% at 30 to 39 years, 9% at 40 to 49 years, and 47% and up after age 50 in the presence of a solitary pulmonary nodule. Combinations of age, sex, smoking habits, lack of calcifications or laminations, and x-ray appearance of the borders as well as growth rates appreciably alter the risk rate. In this particular study, if all patients with solitary pulmonary nodules which had fuzzy borders or were greater than 4 cm. in diameter had been subjected to exploratory thoracotomy, every malignant tumor would have been discovered.

GYNECOLOGY & OBSTETRICS

Endometriosis of the Small and Large Intestine. R. S. Boles and P. J. Hodes. Gastroenterology. 34: 367-380 (March) 1958 [Baltimore].

The authors are of the opinion that gastroenterologists are not sufficiently aware of intestinal endometriosis. Surgeons have reported on this condition and have called attention to the difficulties met with in its differential diagnosis. The authors present the histories of 12 patients with pelvic endometriosis involving the small and large intestine. As pelvic endometriosis is most common between 25 and 40 years of age and is usually associated with infertility, it is of interest that of the 9 married women 6 had children and that the average age in this group was 40 years, the youngest patient being 23 years old and the oldest 52 years. It is probable that many young women have unrecognized pelvic endometriosis that is causing various so-called functional or reflex disorders of the intestinal tract. The disease often escapes recognition, and a positive diagnosis is infrequently made before operation. It may simulate appendicitis and terminal ileitis in its acute manifestation and chronic diverticulitis and cancer of the rectosigmoid in its more chronic form, especially in older women. It commonly invades the serosal surfaces and the deeper layers of the intestine, the mucosa invariably escaping. Endometriosis may be more often suspected as a cause of obscure functional and organic lesions in the intestinal tract if it is kept in mind that the symptoms and physical signs frequently are associated with dysmenorrhea and menstrual disturbances and that pelvic examination will in most cases reveal evidence of the disease in the pelvis.

The treatment of endometriosis consists of routine observation, surgical intervention, or irradiation depending upon the severity of symptoms, the patient's age, and the removability of the major lesions. In the absence of complications conservative treatment is desirable, particularly in women of the child-bearing age with the preservation of ovarian and, if possible, menstrual and procreative functions. In recent years androgen therapy seems to have been efficacious in some cases. The history of the oldest patient in the group, a 52-year-old woman who was subjected to a sigmoid colectomy and in whom the pathological diagnosis was endometriosis of the sigmoid colon and left ovary, illustrates the difficulties encountered in the differential diagnosis between endometriosis and carcinoma of the sigmoid colon. Some of the histories show that there may be early involvement of the colon in pelvic endometriosis without significant intestinal symptoms. Another case history illustrates how the acute symptoms and physical findings of active endometriosis may simulate acute appendicitis. The 12th patient presented illustrates what may well be a syndrome hitherto unrecognized in the literature of disordered motor function of the small intestine due to peritoneal irritation; the latter was the result of free endometrial fluid in the peritoneal cavity arising from pelvic endometriosis. For several years the patient's illness had been thought to be of a functional nature.

Delivery in the Physiologic Position. F. H. Howard. Obst. & Gynec. 11:318-322 (March) 1958 [New York].

The author reports on 219 women, 52 primiparous and 167 multiparous, who were delivered in the modified sitting position with no sequelae. A new type of delivery table was used. The table has a device to lift the back of the table from horizontal to vertical. The knee crutches are broad. The patient is placed on this table in the lithotomy posi-

tion, and the back is then elevated through an arc of 90 degrees, wherein the lithotomy position becomes a sitting position. With the aid of this table, delivery in the physiological position, which is a sitting or squatting position, is practical. It is satisfactory from the mother's viewpoint, since the use of the physiological position makes delivery easier, and it should result in less intracranial damage to the child than is now encountered by the use of the various recumbent positions which are unphysiological and abnormal. It is not claimed that the use of the physiological position will prevent all instances of cerebral palsy, but it is believed that its use will reduce the number and that such reduction will be among those with uncomplicated pregnancy. In patients with toxemia, it seems advisable to augment control of blood pressure and fluid balance when early delivery in the physiological position is performed.

Virus Diseases in Pregnancy and Congenital Defects. A. B. Hill, R. Doll, T. McL. Galloway and J. P. W. Hughes. Brit. J. Prev. & Social Med. **12**:1-7 (Jan.) 1958 [London].

To determine the probability that an illness of the mother during her pregnancy will give rise to a congenital malformation in the infant demands a prospective method of inquiry. One way of securing such records in Great Britain has been described in an earlier paper. The data there used were automatically collected by societies operating up to July 5, 1948, under the National Health Insurance Acts. Under these acts, if an employed and insured married woman drew benefits for a sickness which caused her to be absent from work, she had to present a sickness certificate giving the dates of her illness and the general practitioner's diagnosis of its cause. If she subsequently gave birth to a child, she would be entitled to draw maternity benefits, and the date of birth would therefore also be recorded by the approved society. By these means information was collected on 22 cases over the space of some 2 years; the series included 10 cases of rubella and 6 of measles. The infants were specially examined not long after birth, and 1 case of congenital heart disease as a result of the mother's having rubella in the first month of pregnancy was observed. With the aid of the Ministry of Pensions and National Insurance, the authors were able to collect similar records for 100 women reported to have suffered from rubella, measles, mumps, or chickenpox during or shortly before pregnancy. Seven further cases were brought to their notice privately but prospectively (i. e., before the birth of the child).

Of these 129 cases, 10 were omitted for various reasons, and 119 were analyzed. They included the cases of 44 women with rubella (6 preceding and 38 during pregnancy), 35 women with mumps (6 preceding and 29 during pregnancy), 30 women with chickenpox (6 preceding and 24 during pregnancy), and 10 women with measles (4 preceding and 6 during pregnancy). One of the women who had chickenpox gave birth to twins, so that altogether 120 babies were available for study, of whom 110 were personally examined by 1 of the authors shortly after birth. In the remaining 10, information was available from a hospital or a private physician. Further information was obtained after the child had reached at least 3 years of age. There was no evidence that mumps or measles had had any deleterious effect upon the fetus. With chickenpox, there was also no evidence of the production of congenital defects, but the proportion of live-born children with low birth weights was relatively high (although the difference was not statistically significant). With rubella occurring early in pregnancy, the well-known congenital defects of heart, vision, and hearing were observed. By the addition of these present cases to similar published records, some estimates are reached of the risks involved with rubella in different stages of pregnancy. An incidence of 6 affected children out of 12 whose mothers had rubella in the first month of pregnancy (50%) declines to 5 out of 20 in the second month (25%) and to 3 out of 18 in the third month (17%). With 54 women in whom the attack of rubella occurred in the second and third trimesters, 51 infants were unaffected, and only 1 of the 3 affected cases seemed likely to be attributable to the preceding rubella. Other published data have shown both considerably higher and considerably lower incidence rates of congenital defects after rubella in early pregnancy. It may be, therefore, that the risk varies.

PEDIATRICS

Study of the Air Content and State of Expansion of the Infant Lung: Reference to the Problem of Sudden Death. M. G. Goldberg and M. Wolman. A. M. A. Arch. Path. **65**:263-271 (March) 1958 [Chicago].

The authors studied the lungs of 85 infants up to the age of 2 years and of stillborn infants on whom autopsies were performed. Of each lung, 1 lobe was inflated with air, another lobe was deflated, and the 3 other lobes were not manipulated and served as controls. Areas with increased alveolar volume (overexpansion), varying greatly in size, were often observed. It was found that "overexpansion of the alveoli" is not always identical with "emphysema" (increased air content), since in many areas of increased alveolar volume the distended alveoli contained fluid instead of air. Overexpansion was caused in some instances by blood, edema fluid, or other liquids. Three different types

of atelectasis were recognized, namely, diffuse atelectasis, polarized atelectasis, and microatelectasis. Microatelectasis around areas of focal emphysema was commonly found. The term dysaeration was proposed for the association of focal emphysema and microatelectasis. Dysaeration was found to occur after obstruction of air passages by exudate, mucus, or other fluids and forced inspiratory movements. It is reasonable to assume that the frequency of dysaeration in young infants and especially in premature newborn infants is due to the small caliber of the air passages in relation to the size of mucus droplets and desquamated epithelium. It is suggested that through a vicious circle of anoxia, forced inspiration, and increased dysaeration this process may lead to sudden death in infants.

The findings of this study are considered to be relevant to the therapeutic and prophylactic approach toward anoxic states in infants. The various drainage procedures in use might help to avoid the formation of dysaeration, but the administration of air or oxygen under pressure to infants is a dangerous procedure, because it might precipitate focal emphysema and microatelectasis in infants in whom liquid or mucus is present anywhere along the respiratory tract. The use of drugs to diminish hyperventilation might be considered. The problem of rational mucolytic therapy effective in diminishing mucus secretion requires further study. At present, drainage methods are probably the only answer to the removal of fluids from the respiratory tract.

Immunization and Epidemiology of Diphtheria in Schleswig-Holstein in the Years 1946-1956. H. Knothe and W. Laforet. Ärztl. Wchnschr. 13: 145-148 (Feb. 14) 1958 (In German) [Berlin].

With the aid of tabulated figures the authors demonstrate that the incidence of diphtheria (morbidity) in Schleswig-Holstein has been decreasing from a high of 56 per 10,000 population in 1946 to 0.5 per 10,000 in 1956. A similar although not quite as decided a decrease in diphtheria morbidity (from 33 to 1.6) has also been noted in all of Western Germany. The diphtheria morbidity in Germany is, however, still above that in other countries of western Europe. Investigations carried out by the authors indicated that immunization against diphtheria, at any rate the number of vaccinations, was not the decisive factor in the decrease in diphtheria morbidity. On the contrary, they regard the decrease as a manifestation of a wave movement in the direction toward a wave trough, which may have been reached or will be reached shortly. It has yet to be proved whether active immunization against diphtheria will succeed in definitely breaking through the rhythmical periodicity and abort the next epidemiologic wave. In view of the limited extent of protective diphtheria vaccination in Schleswig-Holstein, the authors doubt that this will be the case.

Since therefore the possibility exists that in the coming years the diphtheria morbidity will again increase, it seems dangerous to adopt the attitude taken in some counties of Schleswig-Holstein that, in view of the favorable epidemiologic situation, protective immunization against diphtheria can be dispensed with. The authors agree with those observers who have emphasized that active immunization is an effective weapon in the combat of diphtheria as such. Thus, whereas in the counties in which there is a large number of vaccinated persons a new epidemic wave will probably cause a smaller number of diphtheria attacks and also a lower lethality, the lack of protective vaccination in other counties will doubtlessly cause a higher morbidity and lethality. The authors recommend that, despite the present favorable epidemiologic conditions, active immunization against diphtheria should be carried out generally among the child population and should not be limited to a few counties in which the protective effect of vaccination is appreciated.

DERMATOLOGY

Poison Ivy (Rhus) Dermatitis: An Experimental Study. A. M. Kligman. A. M. A. Arch. Dermat. 77:149-180 (Feb.) 1958 [Chicago].

This essay reviews current information on Rhus dermatitis. The family Anacardiaceae includes a number of related plants which are dermatogenic. The 2 most important in the United States are Rhus radicans (poison ivy) and R. toxicodendron (poison oak). The Rhus allergens have the common chemical skeleton of a catechol with a 15-carbon side-chain in the 3-position. They differ only in the degree of unsaturation of the side-chain. The allergenic principle is present in all parts of the plant which contain resin canals. Its release requires bruising of the tissue. All persons can become Rhus-sensitive with sufficient exposure. There is no evidence of a spontaneously acquired immunity. About 50% of young adults will react positively to the application of bruised leaves. Darkly pigmented races have a lower incidence. Sensitivity gradually declines with time, irrespective of continued casual exposure. Of persons over 60, a minority are Rhus-sensitive. Those who react to strong concentrations of the saturated Rhus allergen (pentadecyl catechol) but not to the leaf are termed subclinical reactors. Presumably most of these have lost their clinical sensitivity. Once lost, sensitivity is not easily reestablished except by severe exposure and then only in a minority of instances. Rhus sensitization cannot be prevented by prior feeding or contact with the allergen.

The depth or degree of sensitization is revealed by quantitative patch tests with serial dilutions. The titer, beyond which further dilution causes no reaction, is a meaningful measure of the degree of sensitization. The theory is advanced that allergic contact dermatitis is a generalized state of sensitivity with chief reactivity localized in the skin. Immediately after or concomitant with severe widespread Rhus dermatitis, the skin may show 2 opposite types of reactions: supersensitivity or hyposensitivity. The unusual consequences of Rhus dermatitis include eosinophilia, kidney damage, urticaria, and dyshidrosis. There is no practical topical measure which will adequately protect against field exposures to Rhus plants. This includes soap and water washing, barrier creams, and detoxicants. Topical therapy will not abort or moderate Rhus dermatitis as do the usual nonspecific dermatological measures. Corticosteroids are the only systemic agents with a demonstrated ability to benefit Rhus dermatitis. The treatment of Rhus dermatitis by the administration of Rhus allergens during the acute attack is irrational and hazardous.

An Oral Antigen Preparation in the Prevention of Poison Ivy Dermatitis: Results in 455 Cases of Ivy Sensitivity. E. R. Gross. Indust. Med. 27:142-144 (March) 1958 [Chicago].

The poison ivy plant and its allies are major occupational hazards to tree service workers, telephone and electric-power linesmen, pipeline layers, woodsmen, farmers, and men in the armed services. Tree service workers, because of their frequent contact with poison ivy year after year, make excellent subjects for studies of desensitization methods. Attempts to prevent poison ivy dermatitis by ingesting parts of the poison ivy plant or its oleoresins are as old as the American Indian practice of chewing poison ivy leaves. Parenteral administration of poison ivy antigen is objectionable for several reasons: (1) the method is not suitable for frequent administration of small doses; (2) inflammatory reactions at the site of injection are common; and (3) incipient poison ivy dermatitis may flare up as a severe dermatitis. In oral administration, the nature of the vehicle is important. An extract for the prevention of poison ivy dermatitis should be suitable for oral administration, should be in a nonoily vehicle, and should be stable. The author reviews experiences with an extract that meets these requirements. The preparation is a stabilized extract of fresh poison ivy leaves and stems in 70% alcohol. The uniform potency of the extract makes it possible to prescribe a standardized dosage.

Four hundred fifty-five subjects, including private patients and the employees of a tree service company, were given the extract orally in small daily doses for 6 weeks prior to the poison ivy season and less frequent maintenance doses during the season. All subjects had a previous history of sensitivity to poison ivy. During the season, after prophylaxis, 76.9% of the subjects were either free of poison ivy dermatitis or experienced milder attacks. Two of the patients complained of nausea and gastrointestinal disturbances. There were no other reports of untoward side-effects.

UROLOGY

Relations Between Hypertrophy and Carcinoma of the Prostate. W. Dontenwill and H. Wulf. Arch. Geschwulstforsch. 12:14-18 (No. 1) 1958 (In German) [Dresden, Germany].

The authors investigated whether carcinoma of the prostate develops more often in patients with hormone-dependent hypertrophy of the prostate than in patients free from prostatic hypertrophy, that is, whether hypertrophy of the prostate is a precancerous lesion. They studied the records of 880 patients from whom hypertrophic prostate tissue had been examined at the pathological institute of the University of Kiel from 1942 to 1951. The later course of 556 patients could be traced, but the 120 who died during the first 2 years are omitted from further consideration. Four hundred twenty-four of the remaining 436 patients (97.25%) remained free from prostatic carcinoma, while in 12 patients (2.75%) carcinoma of the prostate was established either histologically or clinically. The authors also investigated the incidence of simultaneous existence of hypertrophy of the prostate in 122 patients with carcinoma of the prostate and found that 57 (47%) also had hypertrophy. Autopsy studies on unselected cases of pathological institute reported by others revealed that the incidence of carcinoma of the prostate between the ages of 66 and 75 years is 2.7%; in the 220 patients of this age group who were among the patients with prostatic hypertrophy studied by the authors, the incidence was the same. Thus, prostatic carcinoma is only of average frequency after prostatic hypertrophy, which therefore cannot be regarded as a precancerous condition.

INDUSTRIAL MEDICINE

Surgical Therapy in Tuberculosilicosis. N. C. Andrews, P. C. Pratt, L. E. Wilt and K. P. Klassen. Am. Rev. Tuberc. 77:62-72 (Jan.) 1958 [New York].

While few patients hospitalized with tuberculosilicosis will have a distribution of disease suitable for surgical intervention, some can be treated by this method. Forty-eight patients were admitted to the Ohio Tuberculosis Hospital during the past 6 years with a history of occupational exposure to

dust and with tuberculosilicosis either suspected or proved. Thirty of these patients were treated by medical means, some because surgery was not indicated and others because pulmonary function or a cardiac condition precluded surgical therapy. Eighteen patients received surgical therapy, but 4 are not evaluated. The surgical procedures in 14 patients with tuberculosilicosis were pneumonectomy in 1, bilobectomy in 1, lobectomy in 7, segmental resection or less in 4, and extraperiosteal plombage in 1. The authors conclude that surgical therapy can be applied successfully to some patients with active tuberculosilicosis. Patients with extensive disease, which requires a pneumonectomy or a bilobectomy, in whom the roentgenogram demonstrates extensive lymph node involvement near the hilus, can be expected to have poor results. Technical difficulties will be encountered in many patients with tuberculosilicosis; however, by careful surgical dissection, by peripheral and intrapericardial control of the pulmonary artery and pulmonary veins, these difficulties can be surmounted. Of the several complications that may occur in these patients, bronchopleural fistula is the most hazardous and most difficult to control. With a careful combination of medical and surgical treatment, a great proportion of the paitents can be expected to return to active and useful lives.

THERAPEUTICS

ACTH and Adrenal Steroids in the Treatment of Pneumococcal Meningitis in Adults. J. C. Ribble and A. I. Braude. Am. J. Med. 24:68-79 (Jan.) 1958 [New York].

In an attempt to reduce the hazards of exudative inflammation and hypersensitivity to pneumococcus, 7 men and 5 women, between the ages of 27 and 73 years of age, with pneumococcic meningitis were given bactericidal chemotherapy with corticotropin as a supplement. Penicillin in a dose of 20 to 30 million units daily was given usually in the form of a slow intravenous drip. Three patients were given part of the daily total dose intramuscularly in divided doses of 1 or 2 million units every 2 hours. All patients received corticotropin in doses of 40 to 120 units intravenously, 3 received hydrocortisone in doses of 150 to 200 units intravenously, and 1 received cortisone in doses of 50 to 150 mg. intramuscularly. Corticotropin was used in all patients to avoid the possibility of adrenal atrophy which may follow the use of cortisone and other adrenal steroids. Eleven patients (92%) recovered, and 1 patient died 18 hours after admission to hospital. Another patient died 6 months later of pneumonia and a brain tumor, but no residual evidence of meningitis was observed at autopsy.

Evaluation of the anti-inflammatory effectiveness of the steroids in these patients was difficult because of the simultaneous administration of penicillin, but the remarkable decrease in spinal fluid pressure, protein content, and cell counts in certain patients did not appear to be attributable to penicillin alone. It has also been difficult to establish the importance of steroids in protecting the patients from bacterial hypersensitivity, because reactions of this type consist of marked outpouring of leukocytes and protein in the spinal fluid as well as nuchal rigidity, headache, high fever, convulsions, and coma, which are identical with the clinical manifestations of pneumococcic meningitis. No serious deleterious effects of corticotropin therapy were noted in these patients. Adrenal steroids may be administered even to desperately ill patients with no increase in the incidence of untoward effects. The combined therapeutic regimen used in these patients would seem to deserve further trial.

19-Nor-17α-Methyltestosterone, a New Progestational Substance More Potent than Progesterone. F. E. Mansani. Minerva ginec. 9:935-941 (Nov. 30) 1957 (In Italian) [Turin, Italy].

Clinical investigations by the author on many patients with gynecologic and obstetric endocrine disorders have shown that 19-nor-17α-methyltestosterone is an effective progestational agent. Clinical results in 6 patients are discussed. One patient, single, 22 years old, with catamenial epileptic seizures ascribed to hyperestrinism, received this drug for 4 months. Symptoms of epileptic seizures gradually subsided, and no disequilibrium of the regular monthly menstrual periods was observed. The combined medication of 19-nor-17α-methyltestosterone and an estrogen artificially induced monthly menstrual periods in 2 patients; 1 of them was a single, 17-year-old girl, with primary amenorrhea associated with primary ovarian dysgenesis, and the other was a 36-year-old married woman, with secondary amenorrhea due to total hypoovaria. This drug produced arrest of metrorrhagia and restored the regular monthly menstrual periods in 2 patients, 1 of whom had menorrhea caused by relative hyperestrinism, and the other had menometrorrhagia and dysmenorrhea due to absolute hyperestrinism. The 19-nor-17α-methyltestosterone combined with a sedative therapy caused bleeding arrest and continuation of pregnancy in a primigravida woman, 20 years old, in whom abortion was likely to occur in the 4th month of pregnancy, due to severe hypoluteinism (hypoprogresteronism). As a progestational agent, 19-nor-17α-methyltestosterone has proved to be more potent than progesterone. The possibility of using the oral route and the administration of small daily doses (about 1 mg.) give this drug an advantage over progesterone and other progestational agents.

BOOK REVIEWS

The Aged in American Society. By Joseph T. Drake, Professor of Sociology, Davidson College, Davidson, N. C. Cloth. $5.50. Pp. 431. Ronald Press Company, 15 E. 26th St., New York 10, 1958.

This book is a welcome addition to the growing literature concerned with the various aspects of the problem of aging. Written from the social economic viewpoint, it makes an outstanding contribution in this respect. It is well written and contains much valuable information. As a source book, it should be very valuable. It presents the problems of the aging from every angle, a feat not accomplished in any previous book on the subject. The portion regarding the economic needs of aging persons is especially well done and timely. This book is highly recommended.

Psychosomatic Ophthalmology. By T. F. Schlaegel, Jr., M.D., Assistant Professor of Ophthalmology, Director of Research, Department of Ophthalmology, Indiana University School of Medicine, Indianapolis. With collaboration of Millard Hoyt, M.D. Cloth. $11. Pp. 523. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1957.

The author, with a background of psychiatry and clinical teaching and research in ophthalmology, has made an outstanding contribution in both fields. If the ophthalmologist takes to heart the many suggestions for diagnosis and treatment contained in this well written and well-documented book, it should be of great help to his patients. As the eye is often involved in patients who have psychosomatic difficulties, the book will be of interest to physicians, nurses, and those working in fields related to ophthalmology. Psychiatrists and psychologists should find valuable material to aid them in the management of their patients. Part 1 contains much data that clarifies later parts, particularly the chapters on the cause and diagnosis of psychosomatic and psychiatric conditions that affect the eyes. In part 2, dermatological and neurological conditions in which the eyes are involved are described briefly but clearly. In part 3, the psychosomatic conditions affecting the eyes are treated under their anatomic location, for example, the eyelid, lens, and uveal tract. In part 4, the ocular conditions that have no strict anatomic location, such as glaucoma and psychogenic disturbance of vision, are discussed. The chapters on glaucoma and injuries in this part should be read by every ophthalmologist who desires a clearer understanding of the traumatic neuroses and wishes to treat his glaucoma patients with greater understanding.

Part 5 is a brief, illuminating discussion on the psychosomatic approach to treatment, but to derive full benefit from reading this book one should have read other works in the field of neurology, psychiatry, and psychosomatic medicine. Although in most cases it is not difficult to decide whether the patient needs mainly rest, ophthalmic treatment, or psychotherapy, referral of a patient to a psychiatrist is not always easily accomplished and should not be undertaken lightly or without good cause. The author disapproves of prescribing orthoptic and other treatment without reference to the cause of the patient's complaint. In chapter 21 there is a wise discussion of the doctor-patient relationship, the technique of interviewing and selecting patients for psychotherapy, and the pitfalls encountered. The author has made many excellent suggestions in regard to the management of surgical patients and blind persons. The bibliographies and index, combined with the clearly presented headings, should make this book of unusual value as a reference work. It is enthusiastically recommended for reading by all who have any contact with patients with ocular difficulties.

Cardiovascular Collapse in the Operating Room. By Herbert E. Natof, M.D., Assistant in Anesthesia, University of Illinois, College of Medicine, Chicago, and Max S. Sadove, M.D., Professor of Surgery, University of Illinois, College of Medicine. Foreword by Warren H. Cole, M.D. Cloth. $6. Pp. 197, with 15 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W. C. 1, England, 1958.

Interest in this carefully organized and well written book should encompass all physicians who share in the care of surgical patients. This monograph offers an exhaustive review of previous experience with all phases of cardiovascular collapse or cardiac arrest in the operating room. Analysis of published reviews is corroborated by personal statistical evidence. Particularly valuable is the section on the physiological mechanisms which give rise to cardiovascular collapse. Significant emphasis is placed on the role of multiple factors, such as hypoxia, hypercapnia, reflex mechanisms, and the toxic effects of anesthetic agents. The authors stress such preventive measures as the correction of anemia, hypoproteinemia, and hypovolemia before operation is considered. Failure to recognize the existence of cardiac or pulmonary disease, they caution, can be responsible for cardiovascular collapse. All members of the medical profession participating in surgical procedures, regardless of the functions they perform, should find this book of great value.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUESTIONS AND ANSWERS

USE OF ACTH FOR PATIENTS TAKING CORTISONE

To the Editor:—*Should a patient on long-term cortisone acetate therapy be given ACTH at regular intervals to stimulate the adrenals? If so, in what dosage and at what intervals should ACTH be given?* *M.D., Tennessee.*

Answer.—Although intermittent administration of ACTH has been widely advocated as a means of circumventing adrenocortical depression by cortisone and allied steroids, there is little or no clinical or experimental evidence to support such use of ACTH. Physiologically, adrenocortical depression by cortisone is a consequence of suppression of the output of adrenotrophic hormone by the anterior pituitary rather than a direct effect of cortisone on the adrenal glands themselves. Administration of ACTH cannot be expected to lessen the suppression of pituitary function by cortisone and may, indeed, aggravate it. It is therefore apparent that exogenous ACTH, through its stimulatory effect on the adrenals, would prevent or correct adrenal depression only while the ACTH was being administered and, possibly, for a short time thereafter. In clinical practice, it would seem wise not to rely on intermittent administration of ACTH as a means of avoiding problems which may be associated with adrenal depression by cortisone.

SAFETY OF SWIMMING FOR VERY YOUNG CHILDREN

To the Editor:—*Three small children living on a tropical island have been swimming since the age of 6 months. Since there are disturbing and conflicting reports on advisability of early immersion, taking into account the circulatory and respiratory apparatus of babies, please give an opinion as to the immediate and long-range effects or dangers involved.*

Leon Sheplan, M.D., San Juan, Puerto Rico.

Answer.—The various hazards that have to be guarded against by adults naturally must be watched for also in children, but the only danger that particularly threatens young children seems to be the pressure applied by adults. It is a common experience to see a boy shivering and quaking in the water while an ambitious father yells impatient instructions from the shore. About a year ago, an especially flagrant instance was much publicized in the newspapers as resulting in the death of a child who had been compelled to practice high diving. The dangers are noted by Reichert (*J. A. M. A.* **166**:1701-1707 [April 5] 1957) as follows: "Especially in interscholastic and intercommunity championship games, with uniforms, parades, prizes, and publicity, and with the possibility of vicarious glorification of parent and school, the psychological responses of all concerned can be abnormal in many ways." When such pressure is absent, it must be assumed that the child's instincts and the parent's experience afford excellent guides in deciding what is pleasant, safe, and beneficial.

FRAGMENTATION OF HEART MUSCLES

To the Editor:—*An autopsy of the heart of a 15-year-old boy who allegedly died of electrocution showed fragmentation of the muscle fibers on some areas. The heart was the only part of the body autopsied. Flabby hearts may show cross fractures, or separations, and this is also seen in old persons and in patients with chronic sepsis, poisoning, chronic wasting diseases, and circulatory failure. Fragmentation is also found in a violent death and in intestinal obstructions. Can any other condition cause this type of fragmentation? There were no other abnormal findings, and the pathologist stated that this fragmentation was not particularly unusual in autopsy material in general. He also stated that, aside from this fragmentation and minor postmortem changes, the structures of this heart appeared well within normal limits. Wood claims that while this fragmentation is found there is no change in any surrounding tissues or any reaction of tissues, but it is thought that it could be due to the agony of death and that it might occur in a healthy heart if death is from hanging, strychnine poisoning or other forms of violence.* *M.D., Iowa.*

Answer.—Fragmentation of heart muscle is frequently observed in persons dying of toxemia or septicemia, but it is also found in those who die from sudden violence. Excessive and acute dilatation of heart muscle just prior to cardiac arrest may be the cause for the condition. At present, neither clinical nor pathological significance is attached to this phenomenon. Jellineck has described, in some cases of death caused by electricity, tearing of heart

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

muscle fibers. This process is always associated with small hemorrhages and, for this reason, cannot be mistaken for simple fragmentation of the heart muscle fibers.

ANSWER.—Two types of fragmentation of myocardial fibers are frequently encountered in postmortem material. Clean, transverse breaks at the intercalary disks are usually referred to as fragmentation and may be either post mortem and due to autolysis or ante mortem and due to sharp rise in intraventricular pressure (Karsner). The other type of fragmentation consists of irregular, oblique, transverse fractures of muscle fibers and is usually regarded as an artefact resulting from the process of preparing the tissue for histological examination. Overtreatment with xylene or other clearing agents, as well as overheating in the paraffin bath, may cause tissue to become unusually brittle and predisposes to fractures of muscle fibers. Frequently, no explanation can be found for the fragmentation observed in postmortem material. Thus, no particular significance could be attached to the finding of myocardial fragmentation in the young man referred to.

ANSWER.—Segmentation, or so-called fragmentation, of muscle fibers is a common finding in histological studies of adult hearts but is less commonly found in younger persons. Saphir and Karsner (*J. M. Research* 44:539, 1924) found segmentation and fragmentation in 41% of the hearts examined in routine autopsy material. The lesion was not limited to any single cause of death but was found in a great variety of conditions, many of which are mentioned in the question. Apparently, delay in doing the autopsy causes little effect due to postmortem changes. Segmentation occurs in hearts examined immediately after death, and most authorities believe that it develops usually in the agonal state. Saphir and Karsner produced marked segmentation of the myocardium of the left ventricles of rabbits by producing dilatation of the left ventricle by ligating the ascending aorta and of the right ventricle by ligating the pulmonary artery. Ligation of the aortas of three dogs and two cats was followed by histological changes similar to but not so marked as those in rabbits. Possibly, terminal agonal dilatation of the heart may produce the lesion in human beings. Severe physical strain is known to cause a sharp rise in blood pressure. Electrocution might have produced a convulsion resulting in elevation of aortic pressure and acute cardiac dilatation in the case in question. A complete autopsy, instead of examination of the heart alone, should have been done in order to obtain proper evidence on which to base reasonable conclusions.

CYSTITIS CYSTICA

TO THE EDITOR:—*A 61-year-old man, who has been under continuous observation since the onset of his illness early in 1954, has attacks of painful urination combined with frequency and urgency lasting for a few days at a time. The pain is not necessarily at the beginning or the end of urination but is throughout. At the onset, the interval between attacks was about seven weeks, but this has increased in frequency until, in the past six months, the attacks have come to be about a week apart. For the past 18-24 months, the patient has passed tissue in the urine. There is no pain when the tissue is passed; the pain begins a day or two before, that is, while the tissue seems to be separating, and the passage of the tissue terminates the attack. Frequency and nocturia are now present even between attacks. There has never been hematuria or a stone passed. In fact, routine urinalyses have all been negative (and acid), except on one occasion when the patient developed a purulent cystitis after a cystoscopy. This patient has had 11 cystoscopies, with 10 biopsies of the bladder and 1 punch biopsy of the prostate. All the examinations have shown the trouble to be in the bladder, which, on cystoscopy, has been described as being acutely inflamed, with multiple small cystic areas which started in a relatively small area of the posterior wall and have gradually come to cover the greater part of it. It has invaded the trigone but has avoided the ureteral openings. As yet, the bladder has not shown any real induration. All biopsy specimens have been reported as showing cystitis cystica, but every piece of tissue passed and findings in innumerable cytological studies of the urine have been reported as containing atypical cells which are probably malignant. In addition to the repeated urologic surveys, this patient has had numerous examinations, including frequent studies of the colon and rectum, roentgenograms of the entire spine, blood phosphatase tests, and repeated urine cultures. These have all been negative. There has been little treatment except for the continuous observation for cancer of the bladder. On one occasion, steroids were given with good results but had to be stopped because of recurrence of a duodenal ulcer. Is this patient's cystitis cystica related to his passing of tissue? Is there any indication for cystectomy of this nonmalignant condition of the bladder? Please advise on medical treatment for this condition.* *M.D., New York.*

ANSWER.—Cystic changes in the mucosa of the bladder may be observed with a variety of mucosal lesions. While the condition known as cystitis cystica is observed most frequently, other inflammatory lesions may be attended by cystic changes in the mucosa. Most of these are caused by infec-

tions, though the causative organism may be difficult to isolate. Unusual forms of urinary infection may be observed in which cultures and smears of the urinary sediment are essentially negative. A condition known as cystitis glandularis is occasionally observed and may be accompanied by cysts and proliferation of the mucosa, as well as by the passing of tissue in the urine. With this condition, atypical cells suggestive of malignancy are sometimes found on biopsy. It is curious that, in the case under consideration, no attempt has been made to treat the cystitis by means of local measures, such as lavage of the bladder and fulguration of the areas involved. Among various solutions which might be tried with lavage is Clorpactin (monoxychlorosene), which recently has been used successfully in treatment of similar clinical conditions. Some patients with regional, panmural, and glandularis cystitis have been successfully treated by means of cystoscopic electrocoagulation. Various forms of antibiotic treatment might also be tried. It would seem that courses of treatment as suggested should be tried before cystectomy is considered.

SHOOTING PAINS

To the Editor:—*A 44-year-old man has complained of shooting pains present in his trunk, scapula, both hands, and both feet for one year. He is a diabetic whose condition is controlled by diet. He had been drinking heavily for many years until the onset of the above symptoms. Neurological examination revealed unsteady gait, poor balance on either foot alone, decreased position and vibration sense in the lower extremities, diminished tendon reflexes, and atrophy of the shoulder girdles and thigh. Spinal fluid examination showed normal pressure, normal manometrics, no cells, and protein level 123 mg.%, chlorides level 748 mg.%, and sugar level 117 mg.%. A repeated spinal tap three weeks later showed protein level 109 mg.% and no cells. The diagnosis has been virus encephalomyelitis, but he has not responded to therapy with thiamine, vitamin B_{12}, and ACTH. The pains have decreased but not disappeared. Please suggest a therapeutic measure to help this patient.*

M.D., New York.

Answer.—The diagnosis of virus encephalomyelitis does not rest alone on the albuminocytological dissociation. Increase of protein level without an associated increase in number of cells may occur in obstructive processes within the spinal canal. If the constriction is in the cervical area, manometric block does not always follow the rule as it does elsewhere, due to the elliptic shape of the canal and its anterior ridge leaving grooves on each side for spinal fluid to transmit the results of jugular compression. The level of the atrophy around the shoulder girdles in this patient suggests the need for careful stereoroentgenographic study of the cervical spine and perhaps a myelogram. The loss of reflexes and even atrophy of the lower extremities can occur in certain gross cervical lesions. In the case described, the spinal fluid chlorides level is also increased, as is the sugar factor. Virus encephalomyelitis (Guillain-Barré syndrome, infective neuronitis) is usually a part of a widespread involvement of the spinal roots and nerves. It is usually preceded by a recognizable upper respiratory infection and should clear under the treatment noted in the question. Obviously, as this has not occurred, the part that the alcohol and diabetes may play in this instance cannot be overlooked. Some of the findings may be altered by a toxic overlay. Virus infection and bacterial allergy can also simulate this condition by causing an epidural thrombophlebitis of the meningorachidian veins. If the cervical x-rays prove negative for osteoarthritis, narrowing of the canal, or other focal processes that deviate from the normal, then clearing up of all oral or dental infection and cultures of the mouth and gums for Streptococcus viridans (alpha prime) with an autogenous vaccine, prepared and administered in ascending doses, often goes far toward control of pain and desensitization.

DELAY IN CLAMPING THE UMBILICAL CORD

To the Editor:—*What is the rationale of the theory that there may be a relationship between delay in clamping of the umbilical cord and icterus neonatorum?*

M.D., Illinois.

Answer.—Full-term newborn infants frequently receive an autotransfusion of cord blood, ranging from 75 to 100 cc., due to late clamping of the cord, i.e., after the cord has stopped pulsating, or due to manual clamping of the cord. Under ordinary conditions in the otherwise hematologically normal child, this will produce no serious defect. It is theoretically possible, however, that in the premature infant or in the infant with subsequent erythroblastosis fetalis the additional infusion of red blood cells will account for an additional amount of bilirubin, due to hemoglobin destruction. The great problem with the presence of bilirubinemia in the newborn infant is primarily based on the fact that in the newborn infant and, especially, in the premature infant the liver is markedly deficient in an enzyme (transferase) necessary to conjugate bilirubin. This produces a marked increase in amount of bilirubin, or so-called indirect acting bilirubin, in the infant's blood, with subsequent possible production of kernicterus. In the mature infant or one or 2-week-old child, the liver has sufficient transferase to allow for conjugation of bilirubin. This type of bilirubin does not allow kernicterus to develop. It would seem, therefore, that the only prob-

lem with late clamping of the cord would come about in the premature infant whose transferase activity was extremely low and would not develop for some period of time or in the infant who might develop a hemolytic disorder due to Rh or other blood-group incompatibility.

DIFFICULT URINATION IN INFANT

To the Editor:—*An 8-month-old boy was given antispasmodic drugs at the age of 3 weeks because of periodic irritable crying simulating that seen in "colic." Until the age of 4 months, the child was taking 7.5 mg. of dicyclomine syrup three times daily. At that time, there was first noted urinary straining, diurnal infrequency, and inability to void while asleep for as long as 12 hours. The urinary meatus, bowel habits, neurological status, and urinalyses were normal. Warm baths stimulated voiding with good stream and produced minimal but definite straining. Except for occasional lapses, the child was not permitted to sleep for more than six hours without voiding. When the child was 5 months old, intravenous pyelograms showed a small bladder and normal upper urinary tract. Passage of a ureteral catheter into the bladder without difficulty was believed to indicate absence of significant urethral stricture. Urinary straining and inability to void when asleep have persisted until the present time. Straining has become more frequent recently, after a three-week period of what seemed to be slight improvement. Has any similar instance of chronic urinary difficulty after the prolonged use of antispasmodic drugs in infants been reported? Has "spastic" urinary sphincter been observed in infants without neurological disease?*

M.D., New York.

Answer.—Although a ureteral catheter was passed without difficulty into the bladder, further study is indicated. Residual urine should be tested or followed by cystoscopy and direct examination of the urethra for such anomalies as urethral valves or some bladder neck obstruction or dysfunction. No case has been observed in which dicyclomine caused difficulty in urination, although this has occurred with methantheline bromide. The difficulty may subside spontaneously or with discontinuation of the medication. No infants have been observed with "nervous spasm" of the external sphincter, but this has been seen in older children.

RETINAL DETACHMENT IN BOXERS

To the Editor:—*What is the incidence of retinal detachments among professional boxers?*

Ralph T. Sproule, M.D., Milwaukee, Wis.

Answer.—An accurate record of the incidence of retinal detachment in professional boxers is difficult to obtain. There is a paucity of past or current literature on this serious eye complication. Six cases of retinal detachments were observed among professional boxers in the past two years in New York State. About 2,000 boxers participated in boxing contests during this period, but only 900 were examined and licensed in New York State during this time. It would appear that retinal detachment among professional boxers is becoming more frequent, but this observation may be more apparent than real, since visual acuity tests, ophthalmological examinations, and consultations are now more frequently performed as a routine requirement of the boxer's medical examination than in the past.

ANIMAL AND VEGETABLE FATS

To the Editor:—*Please give information concerning the content of animal and vegetable fats in margarine and shortenings. Do they contain any large amount of beef and pork fat? Is there no law which orders producers to state the composition of the packages? It is important to know the content of these foods in order to give patients the right diet orders.*

Arthur Samuel, M.D., Chenoa, Ill.

Answer.—According to the figures of the U. S. Department of Agriculture, more than 99% of the fats used in the manufacture of margarine come from vegetable sources, with cottonseed oil and soybean oil being used in 94% of the margarine, plus small amounts of peanut oil, corn oil, and other vegetable oils. Vegetable fat shortenings may be of the compound, blended, all-hydrogenated variety. In the manufacture of the compound variety, liquid oils are adjusted to the proper consistency by the addition of highly hydrogenated oil. The all-hydrogenated shortenings are made by hydrogenating all of the oil, at least partially, and adjusting to the proper consistency with small amounts of completely hydrogenated oil. They have a lower iodine content and, consequently, are more stable than are the blended shortenings. Examination of the label should tell what type of product is being purchased. While the specific vegetable oil will not be indicated on the label, it will be indicated as to whether it is entirely from vegetable sources.

EGG SHELLS AS A SOURCE OF CALCIUM

To the Editor:—*Please comment as to whether the calcium from egg shells, after the eggs are put through a food blender, is in a form which is of use to the human being. How much use could be derived from such a product?*

M. C. Florine, M.D., Janesville, Minn.

Answer.—Egg shell is largely composed of calcium carbonate, with magnesium and other metals in smaller quantities. Analytical values are as follows: calcium carbonate, 93.7%; magnesium car-

bonate, 1.39%; phosphorus pentoxide, 0.76%; and organic matter, 4.15%. Calcium carbonate is almost entirely converted into soluble calcium salts in the digestive tract. Therefore, egg shells processed through a food blender would serve as an excellent source of dietary calcium. It must be remembered, however, that in order for calcium to be useful to the body it is necessary that vitamin D and phosphorus also be present. It should be remembered, too, that the egg shell may not be the cleanest food in the world.

TETRACYCLINE THERAPY

To the Editor:—*Is it permissible to mix ACTH or hydrocortisone succinate with tetracycline hydrochloride? It is permissible to mix tetracycline in 5% dextrose solution for intravenous administration?*

M.D., West Virginia.

Answer.—It is usually unwise to mix ACTH or hydrocortisone succinate preparations with tetracycline. If no precipitate is formed in the mixture it would be safe to inject these together, but, since they are often buffered to a definite pH, there is always the possibility of precipitation, particularly of a polypeptide, such as ACTH. There is no contraindication for mixing tetracycline prepared for intravenous use with 5% dextrose solution.

SPICULE OF FINGERNAIL

To the Editor:—*Occasionally, after the healing of traumatic amputations or other less mutilating injuries of the fingertips, a small spicule of fingernail regrows in a displaced position, thereby causing much subsequent annoyance to the patient, such as when it catches on clothing. Is there any method other than that of open surgical intervention of destroying the dislocated fragment of matrix from which this detached offshoot develops?*

M.D., California.

Answer.—When a small spicule of fingernail regrows in a displaced position, the only known method of adequate treatment is surgical intervention to destroy the dislocated fragment of matrix.

VAGINAL BLEEDING

To the Editor:—*Would protein-bound iodine determinations be of help in determining the cause of vaginal bleeding? If so, why?*

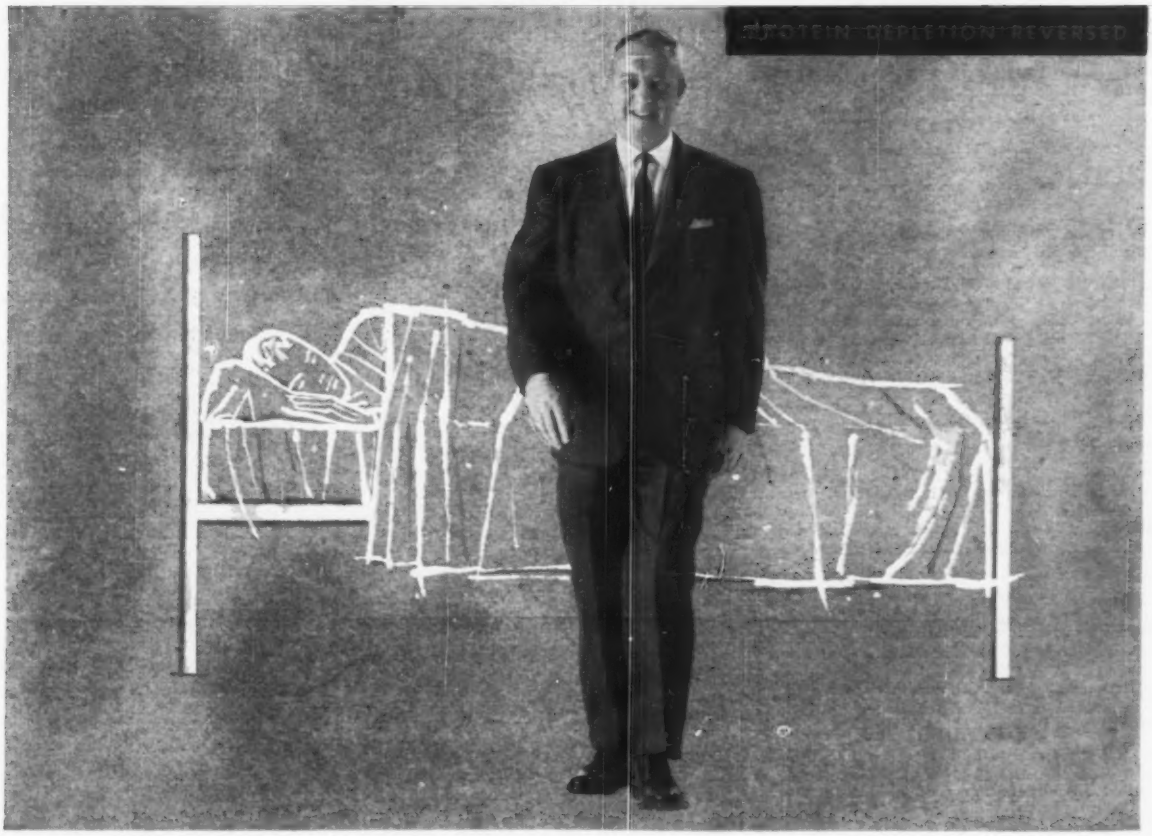
Samuel Newman, M.D., Danville, Va.

Answer.—Disorders of menstruation, such as amenorrhea or menorrhagia, often are complications of thyroid disorders. Women with functional uterine bleeding in whom a low protein-bound iodine level is demonstrable may respond most dramatically to thyroid medication. In all patients with abnormal vaginal bleeding, uterine malignancy, cervical polyps, and incomplete abortion should be ruled out before resorting to hormonal treatment.

CYSTIC DISEASE OF THE BREAST

To the Editor:—*In the question and answer concerning a 35-year-old patient with a combination of bilateral cystic disease of the breasts and polypoid endometrial hyperplasia (J. A. M. A. 166: 1535 [March 22] 1958), the consultant neglected to mention hysterectomy and bilateral oophorectomy as possibilities in the treatment. This patient presents abnormalities in two end organs affected by estrogen, the breast and the endometrium. As a result of bilateral salpingectomy for salpingo-oophoritis, she has previously been rendered sterile. Studies of ovaries involved in such inflammatory processes have revealed persistent oophoritis, formation of cystic follicles, inflammatory cysts, and premature senescence (Hertig). The polypoid endometrial hyperplasia is, in all probability, due to long-standing estrogen stimulation of the endometrium without cyclic ovulation. There is also evidence that this hormonal "milieu" may be a predisposing factor in endometrial carcinoma (Sommers and Hertig). The mastodynia may be secondary to the same persistent estrogen stimulation. Furthermore, Haagenson has presented data suggesting that, in women with clinically evident, proved gross cysts of the breast, the incidence of subsequent breast carcinoma is greater than in women in the general population. Yet he does not believe the risk to be great enough to warrant prophylactic mastectomy. There is also suggestive evidence that the incidence of mammary carcinoma is lower in women who have had bilateral oophorectomy. Herrell found that only 1.5% of women with breast carcinoma had had their ovaries removed earlier in life, while 15.4% of a control series of women not having breast carcinoma had had bilateral oophorectomy. In view of these suggestive data, it would seem that this patient would be best treated by total hysterectomy and bilateral oophorectomy. This would spare her the cosmetic mutilation of bilateral mastectomy and prevent further menorrhagia. Mastodynia is almost always improved by bilateral oophorectomy, and symptoms of surgical menopause may be controlled by intermittent oral administration of estrogens in small doses. Finally, when pelvic inflammatory disease is extensive enough to warrant bilateral salpingectomy, optimum results are obtained by total hysterectomy and bilateral salpingo-oophorectomy. Unfortunately, numerous hysterectomies are performed for indications of much less importance than those presented by this patient.*

Robert W. Kistner, M.D.
Free Hospital for Women
Brookline 46, Mass.



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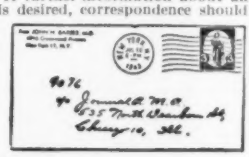

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(Continued on page 70)

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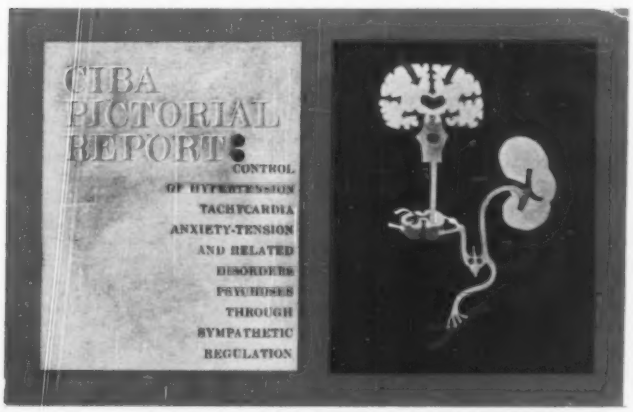

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Cohen, B. M.: Abstracts of the 30th Scientific Session, American Heart Assoc., Oct. 25-28, 1957, Circulation 16:868, 1957.

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In this space will be published anecdotes submitted by physicians concerning their practice or people in general. Contributions for "My Favorite Story" are welcome.

Here's a story concerning a gentleman who was so tight he didn't even tip his hat.

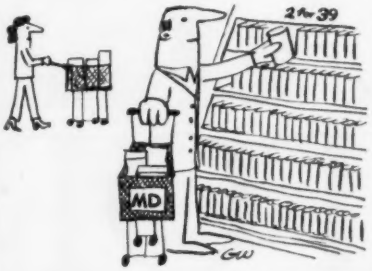
After many years his wife talked him into taking a vacation—an ocean voyage to Europe. He complained on the entire trip about the expense, and he was still grumbling as he walked down the gangplank. Suddenly he noticed a deep sea diver emerging.

"If I had had an outfit like that," said the man. "I'd have walked over too."

•

We are reminded of a story about a friend of ours who jumped into a cab and screamed at the driver: "Follow that cab."

"I have to," answered the cabby calmly. "He's towing us."



A lady was browsing around the infants' wear department in one of the larger department stores. One of the clerks, just to make conversation and to promote a sale, asked her: "Are you expecting?"

"No, I'm not expecting," was the reply. "I'm sure!"

•

The Poetry Corner

There was a brave damsel of Brighton,
Whom nothing could possibly frighten;
  She plunged in the sea
  And with infinite glee,
Was pinched by a playful old Triton.

•

There was an old maid of Oneida,
Who screamed at the sight of a spider.
  She would faint at a lamb
  And run wild from a ram,
But fearlessly tackle hard cider.

•

Boners Are Made Not Born

Newspaper headlines are often a wonderful source of unintentional humor. Here are some examples of a species:

LEWIS WINS AND LOSES UNION SUIT

•

THUGS EAT AND THEN ROB PROPRIETOR

(Continued on page 72)

(Continued from page 68)

The Medical Bureau

900 North Michigan Avenue Chicago

ANESTHESIOLOGY: (B19) Dir. dept; 325-bed hosp; univ. city near Chicago; professional contract averaging $25,000.
ASSISTANT: (C30) Surg; pref. 1-2 yrs' res. surg. or obgyn; surg. group; univ. med. center, So; July 1st.
DERMATOLOGY: (D30) Ass'n, lge clinic & Hosp; Calif.
FOREIGN: (BB6) Internist & 2 GPs, one qual. minor surg; 2-yr tour of duty; E. Indies. (BB7) Public health dir. & GP; new project; Middle East; $20,000.
GENERAL PRACTICE: (F71) Ass'n, young GP; small town, county seat, Piedmont section, N.C.; daily load approx. 70 patients including house calls; new 30-bed hosp; excellent consultation services from nearby med. school; 1st yr., sal; 2d. partner. (F72) Ass'n, 4 GPs; partner oppor; town 30,000, Calif. (F73) Ass'n 14-man group; res. town, So. Ohio, near Wheeling, W. Va.; $12-15,000; early partner.
INSURANCE MEDICINE: (X22) Ass't med. dir; lge co; New Eng. (X22) Massachusetts Mutual Life Ins. Co., Springfield, Mass.
INTERNAL MEDICINE: (H72) Qual. chest diseases or allergy; 14-man group; plans completed for 18 men, new cl. bldg; oppor. partner after 2 yrs; Pac. NW. (H73) Diplomate; head dept, foreign operations, major indus. co; subspecialty training cardiology advantageous, not req; $20,000 (Tax free). (H74) Ass'n, Board internist; suburb of NYC on Long Island Sound; partner oppor.
OALR: (E97) Oto., qual. fenestration; ass'n, lge priv. ALR pract; oppor. partner; Calif.
OBSTETRICS-GYNECOLOGY: (J79) Ass'n, 14-man group, all Board; town 15,000, drawing area, 60,000, near 2 universities, Calif; partner after 1st year. (J80) To head dept, 5-man group; expansion prog; med. school city, Texas.
ORTHOPEDICS: (K31) Ass'n, 15-man group; univ. town, MW; $18,000-$20,000; oppor. succeeding chief. (K32) Ass'n Board orthop; lge priv. pract; met. suburb, N. J., near NYC.
PATHOLOGY: (L46) Dir. dept., 400 beds increasing to 500; present dir. has been averaging $25,000 in addition to lucrative priv. pract; E. (L47) Ass'n, 2 Board pathologists; busy hosp. & priv. pract; Min. $17,000 increasing to $25,000; Calif.
PEDIATRICS: (M57) Head dept, 30-man group; univ. city, Ohio. (M58) Ass'n, 23-man group serving com. 50,000, NY; Partner oppor.
PHYSICAL MEDICINE: (0017) To head dept, 500-bed teh'g hosp; So.
P & N: (P92) Ass't by Board NP; busy pract; attrac. New Eng. town on Long Island Sound; $25,000.
RADIOLOGY: (R18) Dir. dept, 300-bed gen. hosp; expansion prog, including new X-ray dept; % netting $30-40,000; Mich.
SURGERY: (U89) Ass'n, 7-man group; res. town near Chicago. (U90) Preceptee or ass't; large hosp & group; $800 & $1000 respectively; Calif.
UROLOGY: (W27) To serve as chief, new 235-bed gen. hosp; So.

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MEDICAL DIRECTOR

WANTED—JULY 1, 1958, MEDICAL DIRECTOR AND superintendent for 359 bed modern tuberculosis hospital; located in rural scenic area of North Dakota, now averaging 25 patients; 231 admissions in 1957; patients with non-tuberculosis diseases admitted for diagnosis; possibility of transfer of hospital to State university city with faculty appointment for qualified chest physician; U. S. citizenship; five years experience in tuberculosis and eligibility for state licensure required by state law; applicant has to acquire medical license at first opportunity following employment; salary to $14,000 depending upon training, and full family maintenance. Send all particulars including references first letter to: Mr. H. H. Joos, Chairman, Board of Administration, Bismarck, North Dakota.

DIRECTOR OF CLINICAL PSYCHIATRY IN A MENtal hospital approved for two years training in psychiatry; beginning salary $13,500 per annum, plus $1,500 per annum for board certification as a psychiatrist; applicant must be a citizen of the United States; a certified psychiatrist, and licensed to practice medicine in the State of Virginia or possess eligibility therefor; at least five years psychiatric experience; at least three of which must have been in a mental hospital required. Apply: Superintendent, Eastern State Hospital, Williamsburg, Virginia.

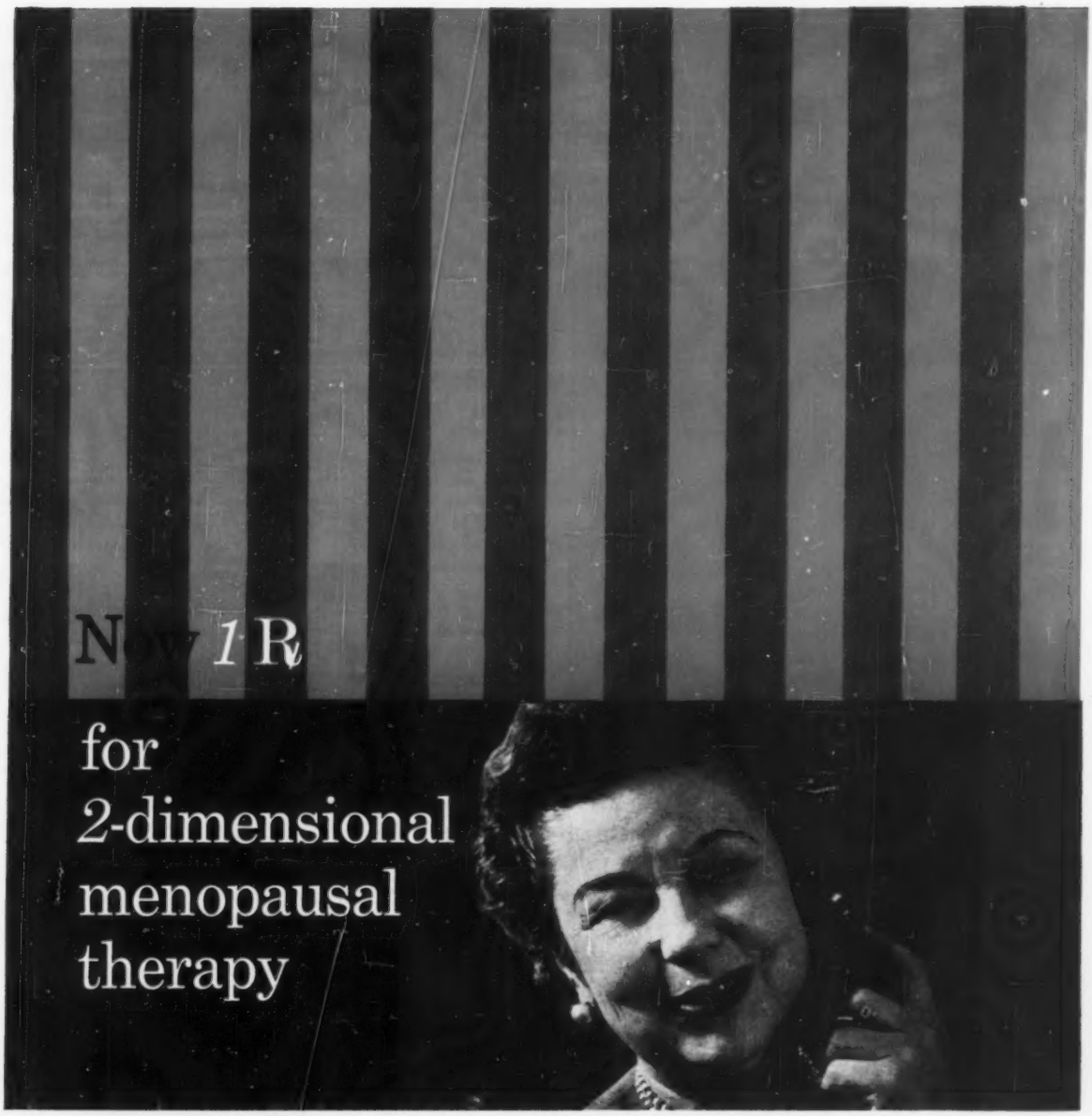
DIRECTOR OF GRADUATE EDUCATION—MIDWESTern hospital with large house staff; non-affiliated; qualifications, teaching and research experience or post-graduate degree in medicine. Box 6023, % AMA.

ASSISTANTS WANTED

YOUNG PHYSICIAN—INTERESTED IN THE CARE, treatment and rehabilitation of retarded children, as assistant in an institution near Philadelphia; good salary; good home, and opportunity for advancement; must be eligible for Pennsylvania license; send full personal details in first letter. Box 6120 B, % AMA.

WANTED — SURGICAL ASSISTANT IN ONE HOSpital by several clinic group surgeons who are certified in their specialties; good pay with room and board if desired. Box 6136 B, % AMA.

(Continued on page 72)



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treats somatic disturbances due to ovarian decline

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SUPPLIED: Bottles of 60 tablets.

EACH TABLET CONTAINS: Miltown® (meprobamate, Wallace) ..... 400 mg.
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Metamucil is a brand of psyllium hydrophilic mucilloid with dextrose.

SEARLE

TONICS AND SEDATIVES *(Continued)*

DOG IN BED ASKS DIVORCE

•

WILDWIFE LEAGUE WILL MEET TONIGHT

•

TWO CONVICTS EVADE NOOSE. JURY HUNG

•

OFFICER CONVICTED OF ACCEPTING BRIDE

•

TANNHAUSER SUNK BY METROPOLITAN

•

HAMM FAILS TO IDENTIFY YEGGS

•

Quotes of the Week

Blessed are they who have nothing to say and cannot be persuaded to say it.

•

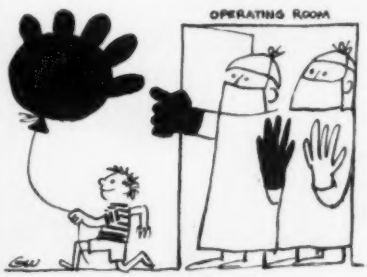
The terrible thing about the quest for truth is that you find it.

•

The path of civilization is paved with tin cans.

•

The reason which often prevents our abandoning a single vice is having so many.



Blessed is he who expects nothing for he shall never be disappointed.

•

A man who desires to get married should know either everything or nothing.

•

He who falls in love with himself will have no rivals.

•

The world is full of willing people—some willing to work; others willing to let them.

•

One kind of happiness is to know exactly at what point to be miserable.

•

Old men are fond of giving advice to console themselves for being no longer in a position to give bad examples.

•

Anecdotes

They tell the story about the jazz musician in the foxhole who was writing to his girl when a big bomb burst right in front of him.

He continued writing: "As I write this letter, they're playing our song."

(Continued on page 74)

(Continued from page 70)

OUR 62ND YEAR

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• ANN WOODWARD • Director

Founders of the counseling service to the medical profession, serving medicine with distinction over half a century.

ANESTHESIOLOGY: (a) Hd dept, 300 bd hsp (expnd'g) fully apprvd; $15,000 guar plus fee-for-serv on all priv rm patients; lge univ city, E.

GENERAL PRACTICE: (k) Take over priv & indus pract involving 95% accident wk in 3 mills (1500 empl); if qual gen major surg can build lge surg pract oppor $25-30,000; Fla. (l) Hd dept GP & Indus Med; newly created dept which will expand gradually; 13 men, mostly cert or elig, estab'd 25 yrs; new cl bldg; excel hsp affil; expnd'g indus twn 40,000 nr univ med cntr; MW. (m) Assn dual prtnrshp FACS surg & well-qual'd GP; busy ofc, hsp, home pract (do own surg); lge coll city, San Joaquin Valley, Calif.

INDUSTRIAL MEDICINE: (u) Med dir, semi-heavy indus; 3,500 emplys, incresg 5,000; Prev Med prog; well-equip'd med dept; pref exper'd internist; to $15,000, fringe benefits; SE. (v) Surg or Ortho; as Chief, Indus Med dept, major co, heavy indus; lge amt surg; lge city, E.

INTERNAL MEDICINE: (o) Assn w/Bd internist; grp 10 specialists, long estab'd serves sevl states; $15-20,000; prtnrshp 1st yr; NW. (p) Bd qual'd w/sevl yrs pract exper; grp assn; oppor $20,000 1st yr; no investment; excel work'g cond; lge twn, vic Los Angeles. (q) Qual, GE; some trng rad, capable GI fluoroscopy; 3 yng Bd qual specialists (internists-ped); vic Palm Beach, Fla lic req'd.

NEUROSURGERY: (w) With good exper clinical neurology; assn w/neurosurg; good sal 1st yr then fully prtnr w/own fees; lge area; Fla lic req'd.

OALR: (e) Oph; qual hd dept, long estab'd 25 man grp; ½ w/excel guar; substantial retirement plan; NW. (f) Oto; assoc w/Dipl. Oto, FACS; about $18,000; coll twn 150,000; MW.

OB-GYN: (m) Hd dept, grp 4 yng specialists, well estab'd; $12-14,000; substantial increase & prtnrshp 2nd yr; new 100 bd apprvd hsp in twn 7500; Ill. (n) Group assn; 25 Dipls long estab'd; outstand'g facil; substantial; bonus, retirement; assoc prtnr 2 yrs; univ city, SW.

ORTHOPEDICS: (m) Assn, 12 man grp, majority Dipls; estab'd '38; very busy pract; twn 100,000, E. (n) Bd elig; assoc or prtnr w Dipl, Ortho; sal or % basis; coll twn 40,000 servg lge area; SW.

PATHOLOGY: (g) Dipl, clinical path; to direct cl labs, outstand'g 70 man grp, many on med schl faculty & own 250 bd fully apprvd hsp; lge univ city; So. (h) Assn w/Bd Path; busy priv & lab pract; $17,000 increasg $25,000; So. Calif.

PEDIATRICS: (h) Assn, dept, 3 peds; 24 man grp, majority Dipls, sevl w academic posts; univ twn nr NYC. (i) Assn, 2 Bd ped; 15 man grp; expansion prog; new cl bldg; attrac twn 10,000, vic Bay area, Calif.

P & N: (x) Psy; Dipl; Director, Professional trng; new post; statewide prog; to $15,000. (y) Neuro; int'd electroencephalography; very lge grp, distinguished men; oppor faculty appt; own hsp; So.

RADIOLOGY: (c) Replace rad, deceased; area not covered; will dir depts, 7 man grp & 150 bd hsp; oppor $20-25,000; consider locum tenens because of urgency; S. D. (d) Assn; 7 outstand'g Bd rad; sevl on med schl faculty; serv 6 hsps; oppor about $20,000; early prtnrshp; lge city, MW.

SURGERY: (t) Assn, 2 FACS's, 1 internist, 4 AAGP's; req's Bd elig surg; some GP 1st yr; $12,000; gd increase 2nd; full prtnr 3rd netting about $25,000 w/no invest; c; est 10 yrs; highly recommended; sevl hrs, Chicago. (u) To organ & hd new grp 5-8 specialists & GP's in 30 bd JCAH hsp; excel facil; sal $18,000 increas'g with % to $25 35,000; ultimate ownership at no cost; SE.

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We offer you our best endeavors—our integrity—our 62 year record of effective placement achievement
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PHYSICIANS WANTED

WANTED — GENERAL PHYSICIANS; UNDER 35 years of age; full time hospital practice; opportunity to develop interest; consultation with specialists available in professional care program of 10 Miners Memorial Hospitals; full time positions with starting compensation at the rate of $12,000 per year; progressive scale; for appointment July 1, 1958; eligibility for licensure in Kentucky, Virginia, or West Virginia required. For details address: The Clinical Director, Miners Memorial Hospital Association, 1427 Eye Street, N. W. Washington, D. C. C

OPPORTUNITIES FOR PRACTICE WITH ABLE group of physicians and surgeons in this GM&S 600 bed Veterans Administration Hospital, Columbia, South Carolina; positions in orthopedics, general surgery, internal medicine, otolaryngology are available; salaries up to $12,685 depending on qualifications, plus board certification allowance; liberal vacation and sick leave and retirement plan; ideal year round climate; U. S. Citizenship and license of any state required; excellent opportunity. Write: Director, Professional Services, Veterans Administration Hospital, Columbia, South Carolina. C

GENERAL MEDICINE OPPORTUNITIES IN NEW rural generalist specialist program; non-profit foundation sponsorship includes excellent facilities, vacation, and post graduate education; guaranteed net income begins $12,000 to $15,000. Write: Clinic Manager, Raleigh Boone Medical Group, Whitesville, West Virginia. C

(Continued on page 76)

Ever see a low-cost x-ray unit with all these features?

G-E PATRICIAN gives you true economy of purchase...

FULL-POWER X-RAY GENERATOR	200-ma, 100-kvp, full wave power to "stop" involuntary patient movement.
FAST CONVERSION FROM RADIOGRAPHY TO FLUOROSCOPY	Double-focus rotating-anode tube easily swings into position beneath table.
FULL-LENGTH ANGULATING TABLE	81-inch table needs no extensions for tall patients. 105° angulation with horizontal stop.
EASY SCREEN MOVEMENT	Precisely counterbalanced fluoroscopic screen remains parallel to table at all times.
INDEPENDENT TUBE STAND	Absolute freedom in positioning tube to patient... simplifies radiographic positioning.
FULL COVERAGE	Screen travels 41½" longitudinally, 10" transversely; moves vertically from 16½ to 70" above the floor.
AUTOMATIC RECIPROCATING BUCKY	Eliminates manual settings . . . consistently produces crisp, clear radiographs with excellent scatter cleanup.
KENOTRON-RECTIFIED OUTPUT	Full-wave rectification at any output lengthens tube life, increases operating efficiency.
LOW PRICE	At a price competitive with other low-cost units — famous General Electric quality.

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COLLOIDAL EMOLLIENT BATHS

provides . . . the soothing, demulcent properties of Aveeno Colloid Baths

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references

1. R. R. Kierland and M. Eds, A.M.A. Arch. of Dermat., 63, 4, 502, 1951 2. Merck Manual, p. 1576, Ninth Edit., 1956 3. H. A. Brunsting, Current Therapy, p. 473, 1958.

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AVEENO® "OILATED" is packaged in 10 oz. cans.

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TONICS AND SEDATIVES *(Continued)*

In another foxhole a soldier wrote to his mother: "As I write this letter, there are planes fighting overhead, bombs bursting above, bullets whizzing by and all around me there is hand-to-hand combat."

His mother answered: "Don't butt in!"

•

Still another private was running away from the front lines a mile a minute when a captain jumped from behind a tree and asked: "Why are you running?"

"Because," said the private. "I can't fly!"

•

A gentleman walked into a photography shop and asked the clerk if he could make life-size enlargements of pictures.

"Certainly," answered the clerk. "That's our specialty."

The customer handed him a photograph and said: "Here, see what you can do with this picture of the Empire State Building."

•

A father was bragging about his young daughter: "Last night my little daughter wouldn't go to sleep unless she could shine my shoes for me. She worked on them for 20 minutes until they were black and shiny. What a doll! She ruined my only pair of brown shoes."

•

A woman walked into a furrier and said: "I would like a drop-dead coat."

"What's a drop-dead coat?" asked the furrier.

"A coat so that when my jealous neighbor sees it, she should drop dead with envy."

•

The husband and wife were arguing as husbands and wives will.

"I'm going home to mother," the wife wailed. "I should have listened to her 20 years ago."

Her husband answered: "Go ahead! She's still talking."

—*D. D.*

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- nausea
- vomiting
- vertigo

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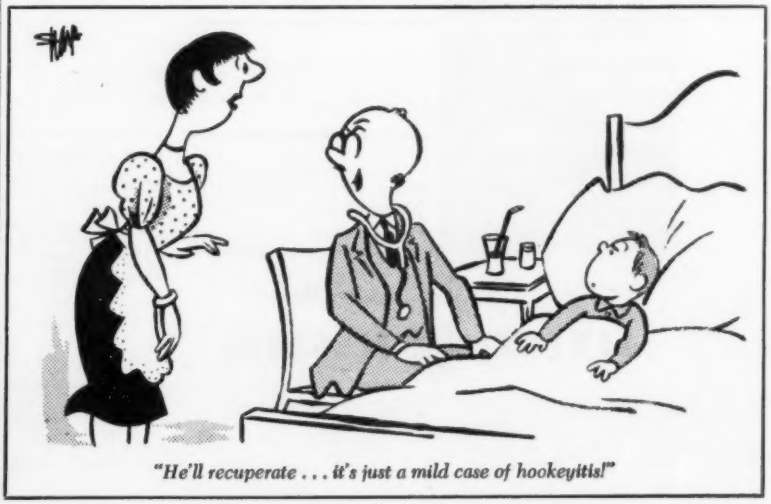

"He'll recuperate . . . it's just a mild case of hookeyitis!"

AN
AMES
CLINIQUICK

CLINICAL BRIEFS FOR MODERN PRACTICE

what are the most commonly neglected principles in management of acute asthma?

Correcting dehydration. Using expectorants. These two measures should be combined since the efficacy of expectorants depends upon adequate hydration.

Source—Carryer, H. M.: A.M.A. Arch. Int. Med. 99:82, 1957.

all-night protection for asthmatics

AMINET® AMINOPHYLLINE WITH PENTOBARBITAL SUPPOSITORIES

Exclusive nonreactive base—always melts promptly at body temperature, never inactivates aminophylline—invariably releases full protective anti-asthmatic dose.

Full Strength AMINET Suppositories—for adult use—Aminophylline 0.5 Gm. (7½ gr.), pentobarbital sodium 0.1 Gm. (1½ gr.), benzocaine 0.06 Gm. (1 gr.). Also available—Half Strength AMINET Suppositories and Plain Aminophylline Suppositories. Boxes of 12.

AMES COMPANY, INC • ELKHART, INDIANA
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NEW non-flammable Gebauer's FLURO-ETHYL

(FLUORINATED HYDROCARBONS)

FLURO-ETHYL is a solution of Ethyl-Chloride and Dichlorotetrafluoroethane which has been demonstrated to be useful as a topical refrigerant for use in plastic surgical skin planing and as an agent to produce local anesthesia for minor surgical procedures. It contains 75% dichlorotetrafluoroethane and 25% Ethyl-Chloride, and when applied topically to the skin, produces rapid refrigeration and anesthesia to the desired depths of the skin.

CLINICAL USES:

Plastic Surgical Skin Planing: In the refrigeration dermabrasion technique GEBAUER'S FLURO-ETHYL, is a refrigerant of choice because it eliminates the necessity of a blower. The mixture is nonflammable and it produces rapid anesthesia and refrigeration to the required depths of the skin. In addition, the mixture does not give the patient a feeling of suffocation if inhaled. The area to be refrigerated can easily be controlled to the desired limits.

Although this preparation is specially designed for plastic surgical skin planing, it can also be used as a local anesthetic for minor procedures such as incision of furuncles, electrocautery to small cutaneous tags, flat warts, and nevi, or the alleviation of needle pain during hypodermic injection.

HOW IT'S USED

When using GEBAUER'S FLURO-ETHYL, holding same in an inverted position, the solution is then delivered onto the skin in the form of a fine, mist-like spray, producing a degree of anesthesia by refrigeration adequate for skin planing without the use of an air blower. To obtain best results place container in cooler before using.

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55 E. Washington Street
Chicago 2, Illinois

Service of Distinction since 1914

ANESTHESIOLOGY: Lge. MW grp of Bd'd cert or elig specialists; tchng affiliations encouraged; own closed-staff 125-bed hosp; $15,000 start w/annual increments of $2000 & bonus sharng prog.

DERMATOLOGY: (a) assn w/Cert man well est. in excel. pract; Mich; $12,000; tchng. appointment avail. (b) Med Grp; excel location Ill; % or prtnrshp basis.

DIRECTOR MED. EDUCATION: 450-bed genl hosp w/appr internshp & res programs; full time; $13,080 start.

ENT: Ill. grp anxious for Cert. or Elig. man; good volume of work for well trained man who wants to work; finan. arrange. open, sal. or %, or sal. plus %.

GENERAL PRACTICE: (a) Assn. in Chgo. suburb; 2 men now there grossing $70,000 yrly; new man will start on % basis, future prtnshp; (b) w/interest in Ped & Ob; assn; Ohio; $1000, prtnrshp in 6 mos. (c) assoc w/man in pract est for 30 years; sal plus %, future prtnrshp; (d) southern Calif Grp of yng men; tchng appointmnts avail; no question of economic & prof future; (e) small town northern Calif; assoc w/man born in '17; $1000 w/prtnrshp after 1st yr.

INDUSTRIAL: Full-time; perm; Ill; $800; 5-days.

INSURANCE: Asst. Med. Dir; pref. trained in Med; interest in cardiol. helpful; around $10,000.

INTERNAL MEDICINE: (a) Clin; very fine & prosperous agricultural comm; $17,000 minimum; new air-cond. bldg., well equip; hosp across street; (b) for indus work; Hawaii; w/newly formed grp; about $1000 w/opptny to increase after PP est; (c) assoc. w/surg; pract lge enough for 2; $1000.

OB-GYN: New grp. in own bldg just completed; everything furnished & ready for new man; $12,000 w/opptny for full membership after 1 yr; Ill.

OPHTHALMOLOGY: lge. N. Mex. grp. lng est, doing cons. resrch; urgent need; finan. arrangements open.

ORTHOPEDIC SURGERY: Ind. clin; Bd'd man guar. sal. of $16,000 net on PP basis; can anticipate to $45,000 a yr; office, equipmnt furnshd.

PATHOLOGY: Modern lab in 168 bed hosp planning expansion; affil. w/State Univ; MW; finan. arrngemnts wide open.

PEDIATRICS: (a) new clin, so. of Chgo; no Ped in area; finan. arrngemnts open; (b) Calif; $15,000 w/unlimited future possibilities; (c) 3d Ped in lge N. D. grp; ideal working conditions; prtnrshp in short time.

PHYSICAL MEDICINE: Director of Dept; mod., well equip; deep South; salary or %.

RADIOLOGY: Penna. hosp; can net $25-$35,000 1st yr., fully appr hosp.

RESEARCH: deep South; hosp; lrgly study in cardio-respiratory physiology; full or part time; sal open.

STUDENT HEALTH: full time, SW, starting Sept. '58; $8000; reg. clin. hrs; no night work; co-ed.

SURGEON: willing to do some GP; $12,000 start, future prtnrshp & bonus; 25 room new brick & tile clin; self sufficient; hosp across street; NW in good hunting & fishing area.

THORACIC SURGERY: Asst; to learn; to $10,600, depending on qual; Tex. hosp.

TUBERCULOSIS: Asst. Med. Dir; Pac. NW comm. of 50,000; excel. starting sal.

UROLOGY: congenial NW grp of 12; seeking man interested in long term assn; $1000 start w/quarterly increments as pract grows; future prtnrshp.

Upon request one of our applications will be mailed to you. Write us today—a post card will do.

(Continued from page 72)

PSYCHIATRIST — BOARD CERTIFIED IN ACTIVE, dynamically oriented hospital with psychiatric residency program; out patient clinic and established research program; situated in the center of vacation land on Lake Michigan's Grand Traverse Bay in progressive city with excellent schools and facilities; salary from $13,000 to $17,000 depending on experience; many fringe benefits; home available. M. D. Sommerness, MD, Superintendent, Traverse City State Hospital, Traverse City, Michigan. C

WANTED—MEDICAL DIRECTOR FOR 150 BED GENeral hospital; responsible for hospital's medical program and services; supervise and assist three resident physicians; confer with and assist administrator in formulation of policies; beginning salary $1,100 plus living accommodations or allowance; vacation; sick leave; retirement; prefer surgery experience; must have California license. Apply to: Madera County Personnel Officer, Courthouse Annex, Madera, California. C

VACANCIES — SENIOR PHYSICIANS WITH MINIMUM of three years psychiatric experience; excellent opportunities for advancement; salary range $7,320.00 to $10,200.00 depending upon applicant's training and experience; annual increments; nominal deduction for complete family maintenance; fully approved large eastern mental hospital with three year accredited residence training progress; must be eligible for licensure in Connecticut. Box 6122 C, % AMA.

MANNSVILLE NEEDS GENERAL PRACTITIONER; farming, small industry and vacation area; 378 village plus 3,116 populated area; doctor left to specialize; potential income $35,000 up yearly; 200 sq. mi. drawing area; nursing home with ambulance service, school physician available; hospitals nearby; Thursday, Sunday call system. Write: Organizations Committee, Mannsville, New York. C

WANTED—RESIDENT PHYSICIANS FOR 150 BED general hospital; opportunity for experience in general medicine and surgery; beginning salary $821 plus living accommodations or allowance; vacation; sick leave; retirement; prefer one with some anesthesia experience; must have California license. Apply to: Madera County Personnel Officer, Courthouse Annex, Madera, California. C

PHYSICIAN AND SURGEON WANTED IN DOUGlas, Arizona; town of 14,000; to join medical staff of copper corporation; salary plus allowance for surgery on employees families and allowed to do private practice. Write to: Chief Surgeon, Phelps Dodge Hospital, Douglas, Arizona, outlining personal and professional background. C

SO. CALIFORNIA COASTAL CITY SURGEON — board or board eligible for rapidly expanding, established group of young men; near beaches, mountains and city; five open staff hospitals; good housing; schools, colleges in area; $12,000 to $20,000 1st year, commensurate with ability; full partnership. Box 6126 C, % AMA.

REEDSVILLE, WISCONSIN — 900 POPULATION; service area 4,000; desire a resident doctor; located in wealthy farm area; large beautiful home and office available; hospitals 17 miles away; doctor very much needed as soon as possible. Write: John Worachek, Reedsville, Wisconsin, or phone Reedsville 5-4463. C

OTORHINOLARYNGOLOGIST — WANTED TO ASSOciate with two otorhinolaryngologists northern California city; two fully equipped separate offices; clinic hospital practice potential; salary percentage contract; personal-professional data required first letter. Box 6131 C, % AMA.

CALIFORNIA AND WEST COAST APPOINTMENTS open for general practitioners, industrial physicians and diplomates of all specialty boards; no registration fee; write for forms; confidential. Pacific Coast Medical Bureau, Agency, 1404 Central Tower, San Francisco 3. C

DOCTOR WANTED COMMUNITY 57,000 POPULAtion; 12 Mile, Indiana; new building, 38 x 50; x-ray, 3 examining rooms, ward, medicine room; high school; 5 churches; 3 hospitals nearby; living quarters available. Call: 257 after 6:00 P. M.; during day call: 12 Mile State Bank. C

PEDIATRICIAN — CERTIFIED OR ELIGIBLE; TO join seven man group; Certified men in other specialties; established clinic in new forty room building; $1,300 month to start; raises every six months, then partnership; suburb of Detroit, Michigan. Garden City Medical Center, Garden City, Michigan. C

QUALIFIED CARDIAC PHYSIOLOGIST FOR 300 BED hospital; kindly state minimum annual salary requirements. For information call or write: F. W. Brown, Administrator, Edgewater Hospital, 5700 No. Ashland Avenue, Chicago, Illinois; Uptown 8-6040. C

GENERAL PRACTITIONER—UNDER 35 FOR SMALL town; northern Illinois; new 9 room air-conditioned clinic, fully equipped; regular office hours; to start July 1st; salary $10,000; partnership after first year; good hospital facilities. Write: Box 6130 C, % AMA.

WANTED — GENERAL PRACTITIONER TO ASSOciate with well established active MD in East Texas town of 7000; excellent hospital and clinic facilities; $12,000 first year; percentage and partnership to follow. Write: Box 6132 C, % AMA.

(Continued on page 78)

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GENERAL PRACTITIONER—GROSS $2,000.00 FIRST month; unusual opportunity; reason only doctor specializing; Illinois licensure required; forty miles from St. Louis. Box 5917 C, % AMA.

GENERAL PRACTITIONER WANTED—TO ASSIST IN active practice in town of 8500; suburb of Chicago; Illinois license; new fully equipped Medical Building. Box 6125 C, % AMA.

WANTED—GENERAL SURGEON; LARGE VOLUME surgery; good hospital mid-Appalachian state; please supply all personal, schooling, and training details first letter; salary $18,000. Box 6127 C, % AMA.

DOCTOR WANTED—TO JOIN TWO OTHER GENERAL practitioners in St. Louis, Missouri, by September 1, 1958; active practice including surgery; list background and enclose photo. Box 6128 C, % AMA.

PENNSYLVANIA—DEPARTMENT OF HEALTH; DIvision industrial hygiene; board eligible preventive medicine; $11,000 to $14,000. N. Y. Medical Exchange, 489 Fifth Avenue, N. Y. C. Patricia Edgerly, Director. C

PEDIATRICIAN WANTED BY SMALL ILLINOIS group; salary $12,000 with possibilities for early partnership; board qualifications not necessary. Box 6137 C, % AMA.

INTERNIST — YOUNG; CERTIFIED OR ELIGIBLE; full or part time; employee health; N. Y. C.; $6,000 to $13,500. N. Y. Medical Exchange, 489 Fifth Avenue, N. Y. C. Patricia Edgerly, Director. C

GENERAL PRACTITIONER—NORTHEASTERN OHIO; excellent opportunity without expense to build wonderful practice; arrange for interview in June or July. Box 6123 C, % AMA.

$25,000—MD AND PH.D. REPORT TO PRESIDENT; head division clinical research; eastern Pharmaceutical company. N. Y. Medical Exchange, 489 Fifth Avenue, N. Y. C. Patricia Edgerly, Director. C

WANTED—SURGEON INTERESTED IN SURGICAL assistanceship on salary basis; chief duty will be assisting in operating room with heavy surgical service. Box 6134 C, % AMA.

OHIO — EXCELLENT OPPORTUNITY TO BECOME associated with two established psychiatrists. Give details and references. Write to: A. Arnold Kippen, MD, 1121 Cleveland Avenue, NW, Canton 3, Ohio. C

OBSTETRICIAN — SOUGHT BY SURGEON-INTERnist; partnership; in midwestern town of 6000; starting salary $12,000 with early partnership arrangements. Box 6119 C, % AMA.

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WANTED—RN AND MD FOR MAINE SMALL LAKEfront girls' camp; July and August; camper exchange accommodated. Aron Gans, Director, 27 James Street, Brookline, Massachusetts. C

SURGEON WANTED BY SMALL ASSOCIATION IN Alaska; start $14,000 to $18,000; prefer young; at least eligible. Pacific Coast Medical Bureau, Agency, 1404 Central Tower Building, San Francisco 3. C

EENT MAN—TO GRADUALLY TAKE OVER LARGE and lucrative practice in Central California. Please give all details. Box 6124 C, % AMA.

PHYSICIAN—NEW YORK LICENSE TO WORK WITH doctor in busy private practice in Jamaica, L. I., N. Y. Box 6129 C, % AMA.

WANTED — THOROUGHLY QUALIFIED PHYSICIAN for general practice and industrial work. 200 Republic Building, Cleveland, Ohio. C

COLLEGE PHYSICIAN AT STATE COLLEGE OF Washington; beginning salary is $11,000 annually; three student health physicians are responsible for the general practice care of the college students; Washington has reciprocity with Alaska, Arizona, Arkansas, Colorado, Minnesota, Nevada, Oregon, South Dakota, Texas and Wisconsin; clinic hours are 9:00 to 12:00 and 1:00 to 5:00 weekdays and Saturday A.M.; 7,000 town population and 6,000 students, with considerable cultural opportunities. Write: Harry E. Zion, MD, Director, State College of Washington, Pullman, Washington. C

(Continued on page 82)

(Continued from page 76)

GENERALIST—UNDER 40; ASSOCIATE BUSY PRACtice; full privileges new hospital; small New Mexico college town; fine professional and financial opportunity; subsidy pending determination of compatibility. Box 6133 C, % AMA.

PHYSICIAN WANTED—FULL TIME FOR ESTABlished practice of general medicine in Kansas City's finest suburb; excellent hospital and medical school facilities. Reply to: C. Vanderwarf, 5828 Reeds Road, Mission, Kansas. C

$17,500 TO $25,000—MEDICAL DIRECTOR FOR FINE midwest pharmaceutical company; middle 30s; previous experience in pharmaceutical industry. N. Y. Medical Exchange, 489 Fifth Avenue, N. Y. C. Patricia Edgerly, Director. C

CAMP PHYSICIAN — CO-ED CHILDREN'S CAMP; central Florida; June 23 through August 17; salary for 8 weeks $600.00, plus maintenance; state license not necessary. Write: Dr. Struhl, Venetian Medical Building, Miami 32, Florida. C

$18,000 TO $20,000—MEDICAL DIRECTOR; WRITING experience; for expanding advertising agency handling pharmaceutical accounts, New York City. N. Y. Medical Exchange, 489 Fifth Avenue, N. Y. C. Patricia Edgerly, Director. C

WANTED—YOUNG, GENERAL PRACTITIONER AS assistant to young physician in Central New Jersey; growing community; modern offices; excellent facilities at two hospitals; possible eventual partnership. Box 6135 C, % AMA.

WANTED—AMERICAN BOARD SPECIALISTS; PHYsicians interested in group or private practice; teaching research, public health or industrial medicine; National and international services. Our 62nd Year. Woodward Medical Bureau, 185 N. Wabash Avenue, Chicago. C

GENERAL PRACTITIONER WANTED—TO TAKE over small town practice in northern Indiana; 50 miles from Chicago; combined home and office; good hospital facilities; can gross $40,000 yearly; financial arrangements flexible. Box 5744 C, % AMA.

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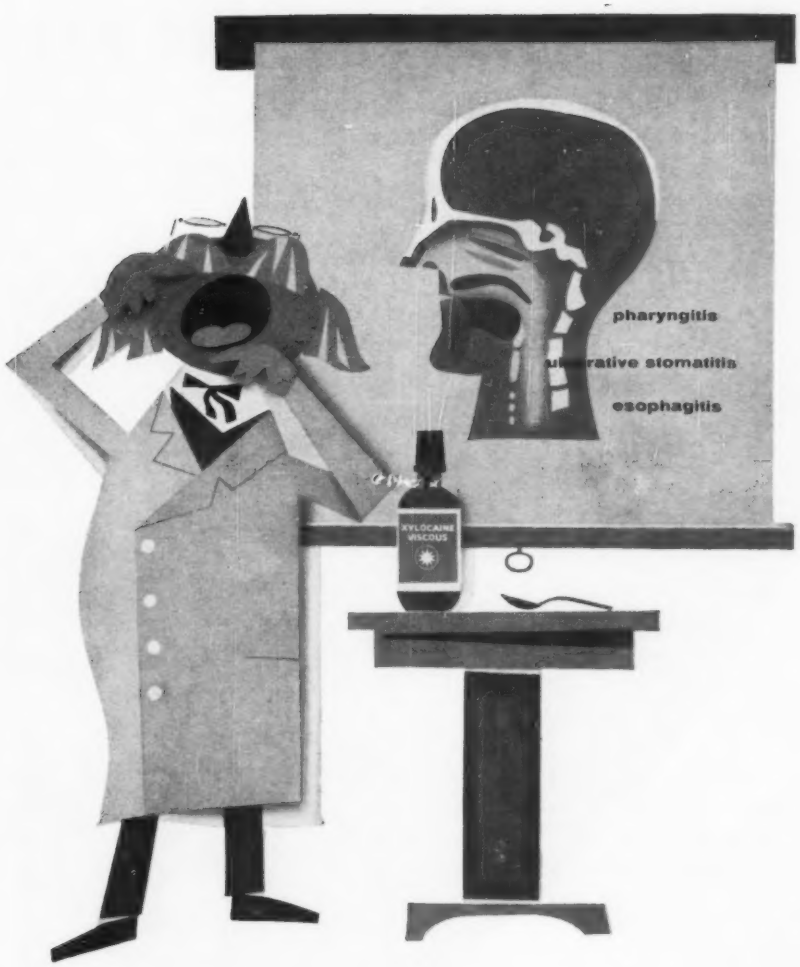
WANTED — YOUNG PHYSICIAN; INDUSTRIAL pharmaceutical and chemical companies and hospitals; psychiatrists, anesthesiologists. Medical Personnel Agency, 7 East 42nd St., New York, New York. C

FULL TIME PATHOLOGIST—300 BED HOSPITAL; $20,000 to $25,000 a year depending on qualifications, experience, etc; must be Board Qualified, and capable of taking charge of laboratories. Box 5346 C, % AMA.



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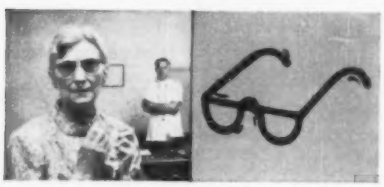

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PHYSICIANS WANTED — OPENINGS FOR PHYSICians in a general medical clinic and for general medicine on a neuropsychiatric service in a university affiliated 820 bed general hospital+; well qualified general practitioners acceptable; citizenship and any state medical license required; salary dependent on training and experience; fringe benefits. Apply to: Dr. A. Tomasulo, Director, Professional services, VA Center, Dayton, Ohio. C

GENERAL PRACTITIONER MD — WANTED AT Mayo, Florida; rent free; five years 12 room modern medical office unfurnished; air-conditioned; centrally heated; population 900; drawing area 5,000; farming and forest industries; modern 2 bedroom house rent monthly. For further information, contact: D. W. West, Town Councilman Fone SW 4-3671, Mayo, Florida. C

PSYCHIATRISTS WANTED—SALARY $7,570 TO $12,685 depending upon qualifications; 25% additional if Board Certified; not to exceed $13,760; approved three years psychiatric residency in conjunction with Northwestern University; hourly commuting distance Chicago; citizenship required. Write: Manager, Veterans Administration Hospital, Downey, North Chicago, Illinois. C

GENERAL PRACTITIONER WANTED — TO TAKE over established practice in association with a well qualified surgeon, either on salary or independent practice basis; 12 room equipped clinic type office; prosperous Kentucky town; 12,000 population; good hospital facilities; shortage of doctors. Box 6025 C, % AMA.

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GENERAL PRACTITIONERS INTERESTED IN PSYchiatry; vacancies exist for several full time physicians; energetic and willing to learn at Veterans Administration Hospital, Chillicothe, Ohio; located forty miles south of Columbus. Write, Manager, Veterans Administration Hospital, Chillicothe, Ohio. C

WANTED—OPTHALMOLOGIST OR OTOLARYNGOLogist; in Texas clinic; Board certification not necessary; increasing percentage with $12,000 guarantee 1st year. Box 3060 C, % AMA.

(Continued on page 86)

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Lhotka, F. M.: Ill. M. J. 112:259 (Dec.) 1957.

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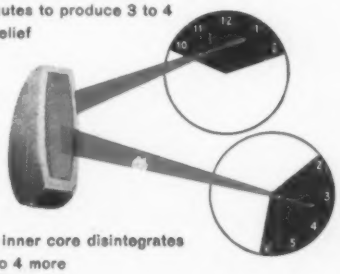

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**Alexander, L.: Chemotherapy of depression —Use of meprobamate combined with benactyzine (2-diethylaminoethyl benzilate) hydrochloride. J.A.M.A. 166:1019, March 1, 1958.*

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(Continued from page 82)

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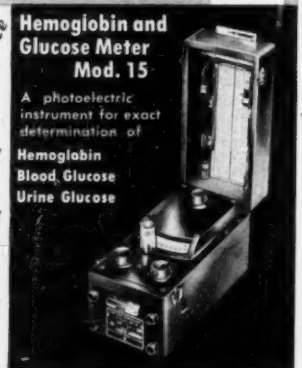

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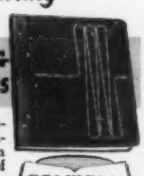

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MENTAL HYGIENE CLINIC

Responsible for professional and administrative aspects of operating an out-patient clinic. Openings in central and southern California. Requires California license; California Board Certificate in Psychiatry, or eligibility therefor; and two full years of full time experience as a Psychiatrist in a psychiatric out-patient clinic. Monthly salary range $1150 to $1300. Applications accepted until June 20, 1958. Secure application from State Personnel Board, 801 Capitol Avenue, Sacramento 14, California.

GENERAL PRACTITIONER — RECENT GRADUATE: to join six man general service group including board specialists; southeast, growing community; diversified industry; excellent climate and recreation facilities; new building; eventual partnership. Box 6088 C, % AMA.

PHYSICIANS WANTED—FOR CHICAGO AND SURrounding suburbs; many full and part time opportunities available including associations, industry and all specialties. Call or write: Garland Medical Placement, 25 East Washington Street, Chicago, Illinois, Andover 3-0145. C

PHYSICIANS WANTED—TO WORK WITH PSYCHIatric patients in 2,400 bed hospital; suburb Chicago; salary ranges $7,570 to $12,685 depending upon qualifications; Northwestern University affiliate; citizenship required. Write: Manager, Veterans Administration Hospital, Downey, North Chicago, Illinois. C

PATHOLOGIST—BOARD CERTIFIED OR ELIGIBLE, very active and expanding department; three other pathologists; salary dependent upon qualifications. Address inquiries to: Dr. Milton G. Bohrod, Director of Laboratories, Rochester General Hospital, 501 West Main Street, Rochester 8, New York. C

WANTED PATHOLOGIST — OWNER OF A BUSY practice laboratory needs help; excellent opportunity to establish security in a prosperous mid-western University city of 75,000; salary open; partnership preferred; should be very attractive for a young man. Box 5927 C, % AMA.

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WANTED PATHOLOGIST — CERTIFIED OR QUALIfied; busy 354 GM&S veterans administration hospital; Lake City, Florida; salary range $8090 to $12,685 plus 25 percent for certification; Florida license not required; U. S. citizenship required. Write: Manager, above address. C

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WANTED — BOARD ELIGIBLE OR CERTIFIED pediatrician; must be available immediately for well established pediatric practice; vacancy caused by death. For details wire or write: W. D. Smith, MD, 119 East Sixth Street, Texarkana, Arkansas-Texas. C

PSYCHIATRIST—BOARD CERTIFIED; ESPECIALLY interested in Psychotherapy; to head research and training programs; salary $15,500; other physicians with Texas license or eligible; $5700 to $11,500. Contact, Superintendent, Terrell State Hospital, Terrell, Texas. C

WANTED — INTERNIST; CERTIFIED OR BOARD eligible to join rapidly growing group in New England coastal college town; partnership opportunity; state internship, qualifications, age, etc. Box 6110 C, % AMA.

(Continued on page 94)

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with each form of Mycostatin you get these advantages

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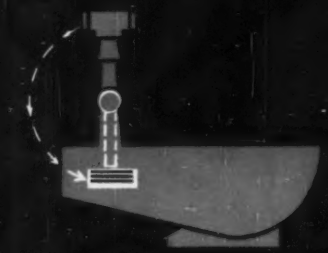

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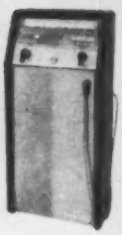

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When tetracycline therapy is indicated–

3 INDISPUTABLE POINTS

References: 1. Council on Drugs, A.M.A.: J.A.M.A. 166:52, 1958. 2. Pulaski, E. J.: Practitioner 179:465, 1957. 3. Cronk, G. A., and Naumann, D. E.: Ant. Med. & Clin. Ther. 4:166, 1957. 4. Kaplan, M. A., Dickison, H. L., Hubel, K. A., and Buckwalter, F. H.: Ibid. 4:99, 1957. 5. Prigot, A., Shidlovsky, B. A., and Felix, A. J.: Ibid. 4:287, 1957. 6. Pulaski, E. J., and Isokane, R. K.: Ibid. 4:408, 1957. 7. Putnam, L. E.: Ibid. 4:470, 1957. 8. Rein, C. R., and Fleischmajer, R.: Ibid. 4:422, 1957. 9. Welch, H., Lewis, C. N., Staffa, A. W., and Wright, W. W.: Ibid. 4:215, 1957. 10. Cronk, G. A., Naumann, D. E., and Casson, K.: Antibiotics Annual, 1957-8, ed. by H. Welch and F. Marti-Ibanez, Medical Encyclopedia, New York, p. 397. 11. Dube, A. H.: Ibid. p. 409. 12. Hubel, K. A., Palmieri, B., and Bunn, P. A.: Ibid. p. 443. 13. Kaplan, M. A., Albright, H., and Buckwalter, F. H.: Ibid. p. 415. 14. Portney, B., Draper, T., and Wehrle, P. F.: Ibid. p. 386. 15. Shidlovsky, B. A., Prigot, A., Maynard, A. de L., Felix, A. J., and Hjelt-Harvey, L.: Ibid. p. 459.

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THE ORIGINAL TETRACYCLINE PHOSPHATE COMPLEX

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1 Tetrex requires no "activating additive"

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for vaginal moniliasis, trichomoniasis or both

a new specific **moniliacide** MICOFUR™ is combined with
brand of nifuroxime

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VAGINAL SUPPOSITORIES AND POWDER

85% CLINICAL CURES* In 219 patients with either trichomonal vaginitis, monilial vaginitis, or both, clinical cures were secured in 187.

71% CULTURAL CURES* 157 patients showed negative culture tests at 3 months' follow-up examinations.

Simple two-step treatment swiftly brings relief and control of vaginal moniliasis and trichomoniasis.

STEP 1 *Office* administration of TRICOFURON VAGINAL POWDER IMPROVED Applied by the physician at least once a week, except during menstruation.

(Micofur 0.5% [*anti* 5-nitro-2-furaldoxime], the new nitrofuran fungicide, and Furoxone 0.1% in an acidic, water-soluble powder base). Plastic insufflator of 15 Gm., with 3 sanitary disposable tips. Also glass bottle of 30 Gm.

STEP 2 Continued *home* use to maintain moniliacidal-trichomonacidal action: TRICOFURON VAGINAL SUPPOSITORIES IMPROVED Employed by the patient each morning and night the first week and each night thereafter—through one cycle, especially during the important menstrual days.

(Micofur 0.375% and Furoxone 0.25% in a water-soluble base) NEW: Box of 24 bullet-shaped suppositories, each hermetically sealed in green foil; with applicator. Box of 12 wedge-shaped suppositories without applicator.

*Combined results of 12 clinical investigators. Data available on request.

NITROFURANS—a *new* class of antimicrobials—neither antibiotics nor sulfonamides

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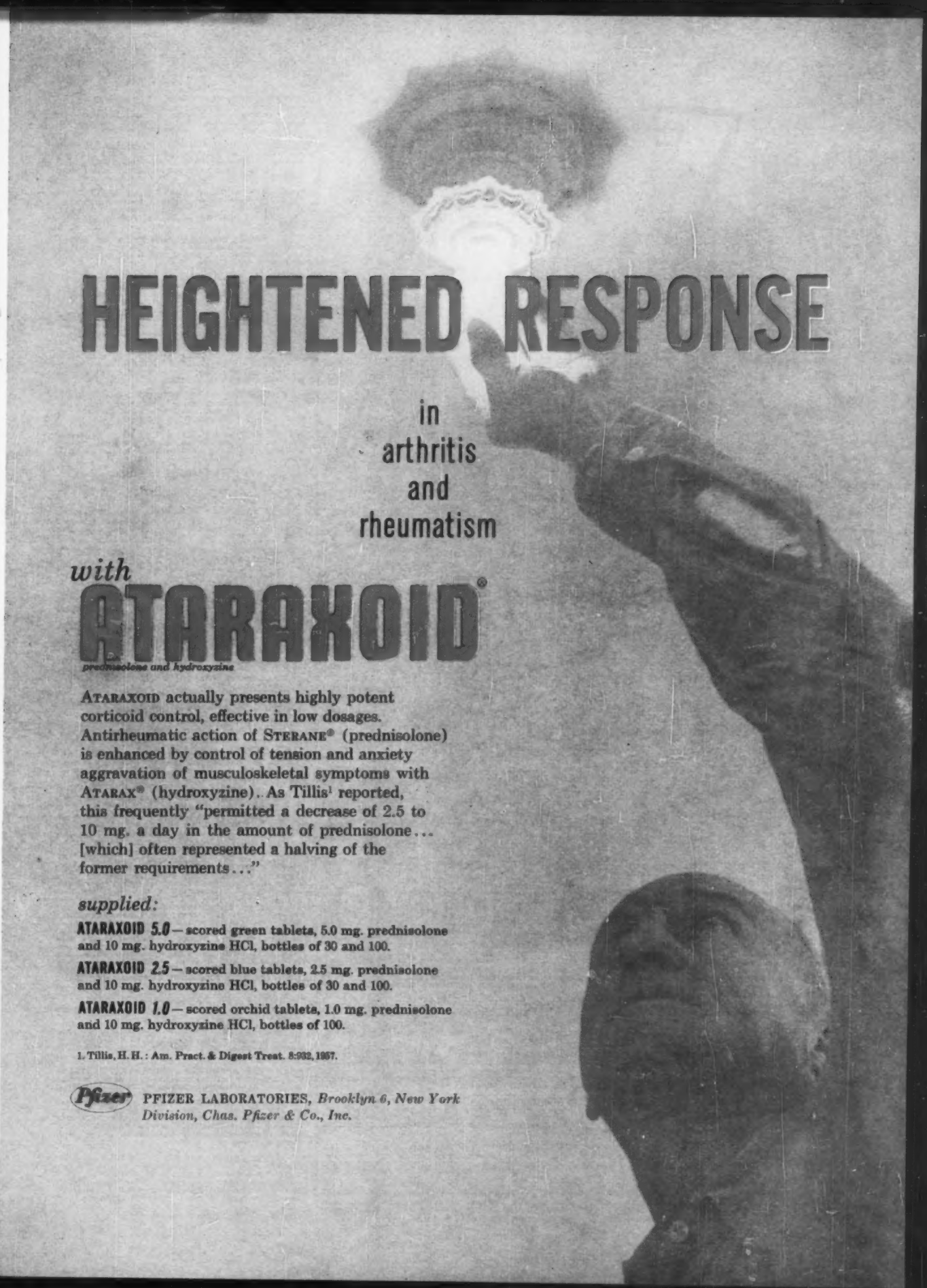

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arthritis
and
rheumatism

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prednisolone and hydroxyzine

ATARAXOID actually presents highly potent corticoid control, effective in low dosages. Antirheumatic action of STERANE® (prednisolone) is enhanced by control of tension and anxiety aggravation of musculoskeletal symptoms with ATARAX® (hydroxyzine). As Tillis[1] reported, this frequently "permitted a decrease of 2.5 to 10 mg. a day in the amount of prednisolone... [which] often represented a halving of the former requirements..."

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ATARAXOID 5.0—scored green tablets, 5.0 mg. prednisolone and 10 mg. hydroxyzine HCl, bottles of 30 and 100.

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ATARAXOID 1.0—scored orchid tablets, 1.0 mg. prednisolone and 10 mg. hydroxyzine HCl, bottles of 100.

1. Tillis, H. H.: Am. Pract. & Digest Treat. 8:932, 1957.

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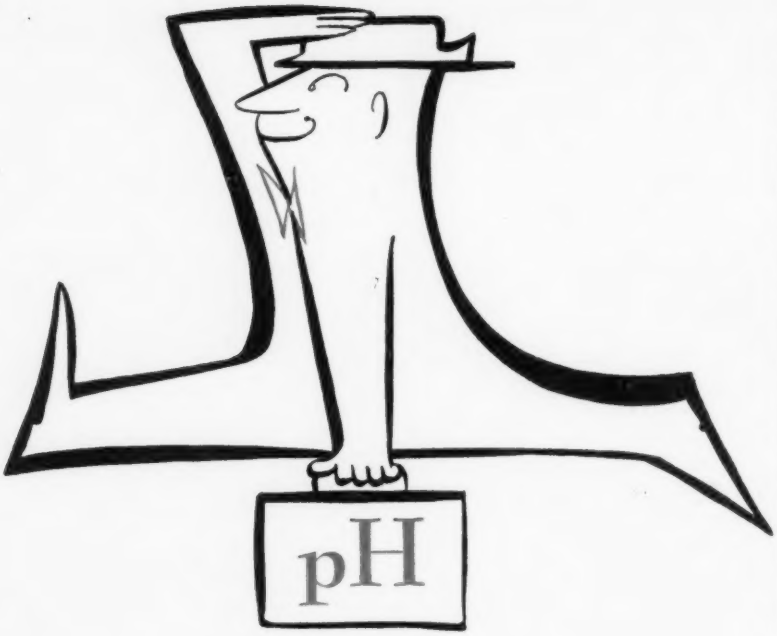

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Magnesium Oxide 60 mg.

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*T. M. Applied for

(Continued from page 86)

GENERAL PRACTITIONER—NORTH CENTRAL NEbraska good starting salary with later association or partnership; large area; state qualifications, school and all information in first letter; laboratory technician, male or female; good salary. Box 6087 C, % AMA.

OTOLARYNGOLOGIST OR OPHTHALMOLOGIST wanted—new clinic type building, ready August 1, 1958; may lease, buy in or salary as desired; Illinois community 20,000; should gross 50,000 first year. Box 6081 C, % AMA.

WANTED RESIDENT PHYSICIAN—RAILROAD EMployees' Hospital, Illinois town of 75,000; must be graduate of approved medical school; 70 bed hospital with dispensary service; liberal compensation. Box 6093 C, % AMA.

LARGE MIDDLE WESTERN PHARMACEUTICAL manufacturer has position for well trained internist; creative medical writing and direct participation in clinical research; give full information, professional and personal; all replies confidential. Box 5669 C, % AMA.

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WANTED — OPHTHALMOLOGIST; MEMBER OF board or board qualified; to become associated with group in East Texas town of 10,000; serving an area of 50,000; salary open; partnership opportunity. Box 6069 C, % AMA.

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GENERAL PRACTITIONER—SOUTHERN CALIFORnia $12,000 annually plus percentage when qualified and leading to partnership; excellent opportunity for future security; license required; state availability, experience, etc. Box 6038 C, % AMA.

DETROIT MEDICAL GROUP OF 14 MEN HAS OPenings for positions in Internal medicine, obstetrics-gynecology, and general practice; excellent opportunities for professional growth and development. Box 5936 C, % AMA.

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WANTED—GENERAL PRACTITIONER FOR ASSOCIate in well equipped Clinic; excellent hospitals in Springfield, Illinois; $12,000 first year; full partnership in four years. Box 6022 C, % AMA.

OBSTETRICIAN - GYNECOLOGIST, PEDIATRICIAN, Neurologist, Neurosurgeon, orthopedist, physical medicine; excellent opportunity to join group sharing new, fully equipped medical building within one hour of New York City. Write: Box 6005 C, % AMA.

ANESTHESIOLOGIST—BOARD CERTIFIED OR ELIgible; graduate of American School; to join established group of anesthesiologists in private practice in Midwest; salary to start with early partnership available; ideal working conditions. Box 5928 C, % AMA.

CALIFORNIA MEDICAL BUREAU AGENCIES—FOR physicians placements and hospitals and medical properties for sale. 405 E. Green Street, Pasadena, California, and 610 S. Broadway Street, Los Angeles 14, California. C

BOARD MAN OR BOARD ELIGIBLE MAN IN ANESthesia—to join anesthesia staff of Lovelace Clinic; If interested, write: J. F. Peters, MD, Lovelace Clinic, Albuquerque, New Mexico. C

YOUNG PHYSICIAN INTERESTED IN WORKING IN southern West Virginia; industrial and general practice; West Virginia license required. Contact: J. H. Murry, MD, Gary, West Virginia. C

IMMEDIATE POSITION AVAILABLE TO A WELL qualified young man; must be willing to work; good opportunity for right man to join group on a permanent basis. Box 5968 C, % AMA.

DOCTORS DESPERATELY NEEDED FOR THE BAY area of California; fastest growing area in United States; suites available in new medical building; six months free rent. Box 6037 C, % AMA.

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WANTED—OTOLARYNGOLOGIST TO HEAD DEPARTment of Otolaryngology at the Jackson Clinic; young board man preferred. Contact: Arnold S. Jackson, MD, Jackson Clinic, Madison, Wisconsin. C

WANTED OPHTHALMOLOGIST TO HEAD DEPARTment of Ophthalmology at the Jackson Clinic; young board man preferred. Contact: Arnold S. Jackson, MD, Jackson Clinic, Madison, Wisconsin. C

WANTED—RESIDENT PHYSICIAN; 150 BED GENeral hospital; JCAH approved; Western Pennsylvania; good salary and maintenance; available now. Box 6085 C, % AMA.

GENERAL PRACTITIONER—TWO YEARS EXPERIence; desires position in Illinois or Michigan; September 1, 1958 to June 15, 1959; graduate class A medical school; excellent references. Box 6107, C, % AMA.

WANTED — CERTIFIED OR ELIGIBLE INTERNIST with training in gastroenterology; 6 man established clinic; college town of 17,000; midwest; full partnership 3 years. Box 5903 C, % AMA.

WANTED—A GENERAL PRACTITIONER TO BE ASsociated with a midwest clinic to service a rural area. Box 6063 C, % AMA.

OPHTHALMOLOGIST—MEDICAL, NO SURGERY REquired; must have Washington, D. C., license; 5 day, 40 hour week. Write: Box 6036 C, % AMA.

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WANTED — 2 ASSOCIATES TO COMPLETE ANESthesiology group; must be American graduates; Board eligible; fee for service. Apply: Box 6062 C, % AMA.

RADIOLOGIST—ASSOCIATE IN HOSPITAL AND OFfice practice; city of 130,000; West Texas; college town; salary leading to partnership. Box 6033 C, % AMA.

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RESIDENCIES IN PSYCHIATRY—UNIVERSITY OF Oklahoma Medical Center. Three year approved training provides broad experience in dynamic psychiatry with intensive psychotherapy of in-patients and out-patients; physiological and pharmacological therapies; neurology; child psychiatry; social and preventive psychiatry; behavioral sciences; psychoanalysis; residents participate in teaching and research; Optional supervision, excellent case material, complete curriculum; Stipends: first year $4,000; second year $4,600; third year $5,200; applications now being considered for residencies beginning July 1959. For details write: Louis Jolyon West, MD, Professor of Psychiatry, University of Oklahoma School of Medicine and University Hospitals, 800 N. E. 13th Street, Oklahoma City 4, Oklahoma. D

INTERNSHIP — 250 BED GENERAL HOSPITAL*+; city of 500,000 situated at the foot of the Rocky Mountains; vacancy for rotating intern; prefer U. S. graduate or foreign graduate with command of English language; appointments effective July 1, 1958. Robert L. Hawley, MD, Director of Medical Education, Mercy Hospital, 1619 Milwaukee Street, Denver 6, Colorado. D

THREE YEAR APPROVED PSYCHIATRIC RESIDENcies; university teaching hospital*+; integrated training program; supervised psychotherapy seminars; lectures; research opportunities; psychoanalytic, psychosomatic; social sciences approaches; opportunity for advanced experience in child psychiatry; psychoanalysis; stipends $3350, $4000, $4650, $5825, $6000. Contact: Dr. George C. Ham, Psychiatric Training and Research Center, North Carolina Memorial Hospital*+, Chapel Hill, North Carolina. D

TWO APPROVED RESIDENCIES — JULY 1, 1958; first or second year in obstetrics-gynecology and in surgery; 253 bed community general hospital*+; active teaching program; private and clinic cases. Apply: Harold Mankin, MD, Coordinator, Medical Education, Herrick Memorial Hospital, Berkeley, California. D

(Continued on page 96)

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McAfoos[1] reported that "menopausal patients, in particular, showed a satisfactory response" to 'Compazine'—often benefiting as much from 'Compazine' as from estrogen therapy.

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1. McAfoos, L.G., Jr.: Prochlorperazine ('Compazine') in Emotional Disturbances, Dis. Nerv. System *18*:430 (Nov.) 1957.

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(Continued from page 94)

PATHOLOGY RESIDENCY — APPROVED FOR ONE year in either clinical pathology or pathologic anatomy; abundant neoplastic, heamatologic and pulmonary pathology; stipend $400 per month; available immediately; California licensure required. Contact: G. Amromin, MD, Pathologist, City of Hope Medical Center, 1500 East Duarte Road, Duarte, California. D

OTOLARYNGOLOGY — APPOINTMENT AVAILABLE now at first level in approved three year program; requirements: U. S. Citizenship, graduation from U. S. medical school, and one year approved internship. Write: James R. Chandler, MD, University of Miami School of Medicine at Jackson Memorial Hospital*+, Miami 36, Florida. D

APPROVED PATHOLOGY RESIDENCY — POSITION available July 1, 1958, in 460 bed general hospital*+ affiliated with Columbia-Presbyterian Medical Center in New York City; two year approved residency in pathologic anatomy under three full time pathologists. Inquire: Director of Laboratories, The Roosevelt Hospital, 428 West 59th Street, New York 19, New York. D

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APPROVED ROTATING INTERNSHIPS — 300 BED general hospital with active teaching service under supervision; full time Director of Medical Education; approved residencies in all specialties; stipend $250 and maintenance. Address: Director of Medical Education, De Paul Hospital, Norfolk 5, Virginia. D

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WANTED — BOARD CERTIFIED PATHOLOGIST OR eligible; under 40; to take over my private practice of pathology; temporary association to full ownership in a well established practice in midwest; excellent opportunity; top remuneration. Write: Box 5999 D, % AMA.

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RESIDENTS—MEDICINE, SURGERY; 250 BED GENeral hospital*+; 3 year approved program; university affiliation; available July 1, 1958; $260; no maintenance. Write: W. C. Perdew, Administrator, Bronson Methodist Hospital, Kalamazoo, Michigan. D

VACANCIES—JULY 1, 1958; FIRST YEAR INTERNAL medicine; 360 bed general hospital*+; three years of approved residency; salary $300 plus $25.00 each year of graded residency. St. Vincent's Hospital, Jacksonville, Florida. D

WANTED—SURGICAL RESIDENT; GOOD VOLUME general and traumatic surgery; 180 bed hospital; eastern state; please supply all personal, schooling, and training details, date of availability first letter; salary $500 per month. Box 6139 D, % AMA.

WANTED—RESIDENTS IN PSYCHIATRY; THREE year approved residencies available; large Eastern Mental Hospital; excellent teaching program therapeutic procedures; $5,280 to $6,600. Box 6121 D, % AMA.

OPENING FOR FIRST YEAR GENERAL SURGERY in fully approved 4 year program hospital*+. Reply: Box 6138 D, % AMA.

NEW YORK CITY—RESIDENTS; A PSYCHIATRIC service in a general hospital with approved three-year training program; all para-medical services fully operative; located in the Greenwich village section of New York City; physical plant modern, up-to-date, recently constructed; this general hospital consists of 830 beds covering all specialties, and including a current capacity of 82 beds in a psychiatric pavilion; affiliated with New York University-Bellevue Medical Center; residencies available on 1st, 2nd, and 3rd year levels; for further information write the Administrator, St. Vincent's Hospital of the City of New York, 153 W. 11th Street, New York 11. Applications now being accepted for training year beginning July 1, 1959. D

APPROVED THREE YEAR RESIDENCIES IN PSYchiatry—New GM&S hospital+; well organized teaching program; affiliated with Washington University School of Medicine; all types of psychiatric experience represented; including supervised dynamically oriented psychotherapy, psychosomatic medicine, child guidance, etc.; approved training in psychoanalysis available locally; full time director of training is a member of The American Psychoanalytic Association; attractive Career Residency Program available; citizenship required. Write to: Dr. Bernard A. Cruvant, Veterans Administration Hospital, 915 North Grand Avenue, St. Louis 6, Missouri. D

PATHOLOGY RESIDENT WANTED — THERE ARE openings now and in July at the Veterans Administration Research Hospital for pathology residents; the 516 bed hospital is affiliated with Northwestern University Medical School and appointments are made through the Dean's Committee with faculty status; rotation through other hospitals affords wide fields and experience; excellent opportunities for research and academic study with good remuneration. Inquire: Director of Professional Services, Veterans Administration Research Hospital, 333 East Huron Street, Chicago 11, Illinois. D

PATHOLOGY RESIDENCIES—AVAILABLE JULY 1, 1958; 4 year approval pathologic anatomy; clinical pathology; 400 bed hospital*+ expanding to 800 beds; medical technicians training school; 200 necropsies; 8,000 surgicals; 150,000 clinico-pathologic examinations; medical photography; staff of Board Certified chief pathologist and 2 assistant pathologists; bacteriologist; 3-4 residents; educational program; stipend 2,400 plus full maintenance including family. Apply: Leo Lowbeer, MD, FCAP, Hillcrest Medical Center, Tulsa, Oklahoma. D

VETERANS ADMINISTRATION HOSPITAL, ANN ARbor, Michigan, a general medical and surgical hospital; positions available; psychiatric residencies; affiliated with the University of Michigan offering a fully accredited three year, well balanced didactic and seminar program; opportunity for experience in an approved new children's residential psychiatric treatment center; must be an American citizen. Write: Paul M. Ireland, MD, Manager, Veterans Administration Hospital, Ann Arbor, Michigan. D

PSYCHIATRY — THREE YEAR APPROVED RESIdencies; well balanced assignments; including inpatient, out-patient department, child, forensic and psychosomatic experience; psychoanalytically and somatically oriented therapies; suburban Chicago; convenient to various psychiatric training facilities; including Institute for Psychoanalysis; resident under supervision of attending psychiatric facilities of medical schools in Chicago; U. S. citizenship required. Address: Louis Jensen, MD, Chief, Psychiatry Service, Veterans Administration Hospital+, Hines, Illinois. D

RADIOLOGY RESIDENCY AVAILABLE — 650 BED general hospital*+; midwest; complete three year resident training for American Board of Radiology; large new department including therapy and isotope divisions; complete teaching facilities; staffed with three Board Certified radiologists and six residents; 39,145 examinations, and 2,142 therapy patients treated last year; good private housing facilities available; stipends from $325 to $400 per month. Apply: Box 5670 D, % AMA.

MEDICAL RESIDENCY AVAILABLE IN THE SAN Francisco-Oakland Bay area; three years approved program on a service consisting of 247 beds in a 712 bed general Veterans Administration Hospital with full consultative staff and affiliated services in other hospitals of the area; applicants must be U. S. citizens and graduates of class A medical school. Apply to: Director, Professional Services, Veterans Administration Hospital+, 13th and Harrison Streets, Oakland 12, California. D

RADIOLOGY RESIDENCY — AVAILABLE JULY 1, 1958; medical school affiliation; active teaching and research program; full time staff; excellent training in diagnosis, therapy, including cobalt and radium, isotopes; modern equipment including cineradiography; stipend and maintenance. Apply: Dr. Harold J. Isard, Director, Department of Radiology, Albert Einstein Medical Center, Southern Division, Philadelphia 47, Pennsylvania. D

PSYCHIATRIC RESIDENCY VACANCIES — APproved three year residency in conjunction with Northwestern University Medical School; extensive training program in clinical psychology, vocational counseling, social service, and related fields; salary ranges from $2,840 to $3,550; and for career residents $5,915 to $8,990; hourly commuting distance Chicago; citizenship required. Write: Manager, Veterans Administration Hospital, Downey, North Chicago, Illinois. D

PATHOLOGY RESIDENCY—APPROVED 4 YEARS IN PA and CP in 385 bed general hospital with well developed research program and supervised by 3 certified pathologists; 360 autopsies; over 8,000 surgical tissues; 160,000 clinical laboratory tests cytology screening program; stipend 1st year $275.00 (more if married and live out); available July 1, 1958. Apply: C. Allen Payne, MD, Director of Laboratories, Blodgett Memorial Hospital, Grand Rapids, Michigan. D

MEDICAL RESIDENCIES WITH THREE YEAR APproval in 600 bed charity and private hospital; active teaching program; full quota of twenty-two interns starting July 1 and full complement residents in other specialties; large and rapidly increasing charity outpatient service with sub-specialties well represented; applications considered from graduates of approved schools. Director Post Graduate Training; Tampa General Hospital*+, Tampa, Florida. D

OPENINGS IN 1ST AND 2ND YEAR APPROVED pediatrics residencies; available now; others July 1, 1958; adequate salary; 800 bed medical school affiliated county general hospital; located in greater Los Angeles near beach cities. Apply: L. A. West, MD, Medical Director, Los Angeles County Harbor General Hospital*+, 1124 West Carson Street, Torrance, California; U. S. citizenship required. D

PATHOLOGY RESIDENCIES — ONE IMMEDIATE; one July 1st; 600 bed general hospital*+ approved for 4 year program; modern, well equipped laboratory; an unusual opportunity to combine research and pathology training; good private housing facilities available; stipends from $325 to $400 per month. Apply: E. M. Knights, Jr., MD, Director of Pathology, Hurley Hospital, Flint, Michigan. D

TWO YEAR APPROVED PEDIATRIC RESIDENCY—Northern California; organized teaching program with eight full-time board pediatricians; appointments available immediately and throughout year; California licensure eligibility required; salary $315 to $390. Contact: Alexander King, MD, Chief, Pediatrics Department, Kaiser Foundation Hospital, Oakland 11, California. D

RESIDENCY — INTERNAL MEDICINE; 1300 BED general hospital; 3 year teaching unit; Baylor University College Medicine; female, private, out-patient medicine; includes all subspecialties under supervision of board certified specialists; stipend $2840 to $3550; radioisotopes, pulmonary function, research, etc.; citizenship required. H. D. Bennett, MD, Veterans Administration Hospital, Houston, Texas. D

RADIOLOGY RESIDENCY — AVAILABLE IN A 740 bed university affiliated and approved hospital; well staffed plus full time board certified radiologists who provide training in diagnosis, therapy, pathology and nuclear medicine. Apply: Gilbert H. Alexander, MD, Director, Department of Radiology, St. Francis General Hospital, Pittsburgh 1, Pennsylvania. D

GENERAL ROTATING INTERNSHIPS—APPROVED 1 year program; including didactic lectures, conferences, grand rounds and supervised day by day clinical experience in 400 bed general hospital; operating in 7,400 bed psychiatric hospital; stipend $3100 per year; Further details from: Superintendent, Saint Elizabeths Hospital, Washington 20, D. C. D

APPROVED PATHOLOGY RESIDENCY — POSITION available July 1, 1958; in 460 bed general hospital affiliated with Columbia-Presbyterian Medical Center in New York City; two years approved residency in Pathologic anatomy under three full-time pathologists. Inquire: Director of Laboratories, The Roosevelt Hospital, 428 West 59th Street, New York 19, New York. D

RESIDENCY IN INTERNAL MEDICINE—APPROVED 250 bed general hospital+* in San Francisco; three year approval; large outpatient department and clinic service; stipend $325 per month first year; plus maintenance. Contact: Educational Committee, St. Luke's Hospital, 1580 Valencia Street, San Francisco, California. D

WANTED — PEDIATRIC RESIDENT; FOR 200 BED general hospital*+ to begin July, 1958; service being developed for accreditation; participating in co-operative plan with a fully approved pediatric service; particulars will be supplied upon request; salary open. Box 5747 D, % AMA.

ANESTHESIOLOGY RESIDENCY — FULLY APproved; two year program with excellent clinical experience as well as integrated didactic lectures covering clinical and basic science material; applicants must be eligible for licensure in California. C. H. Galtup, MD, Highland-Alameda County Hospital*+, Oakland. D

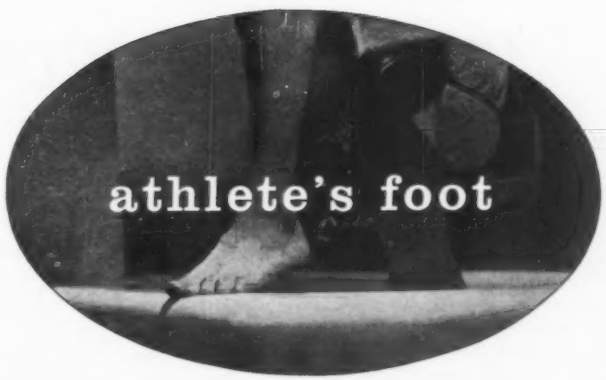
PSYCHIATRIC RESIDENCIES AVAILABLE — University of Washington and Seattle Veterans Administration Hospital; 3 and 5 year integrated program. For information write: Chief, Psychiatry and Neurology Service, VA Hospital, 4435 Beacon Avenue, Seattle 8, Washington. D

ANESTHESIOLOGY RESIDENCIES—AT UNIVERSITY of Minnesota Hospitals, Minneapolis Veterans Administration Hospitals and associated hospitals; an opening every 4 weeks. Address: Frederick H. Van Bergen, MD, Director of Anesthesiology, University of Minnesota Hospital, Minneapolis, Minnesota. D

ANESTHESIOLOGY RESIDENCY — APPROVED; complete didactic and clinical training program; two years duration; appointments presently available. Write: Oral B. Crawford, MD, Director, Department of Anesthesiology, St. John's Hospital, Springfield, Missouri. D

OB-GYN RESIDENCY—THREE YEAR FULLY APproved program in 300 bed general hospital; midwest; first or second year opening available July 1, 1958; applicants must be eligible for licensure in Indiana; beginning stipend $3300.00; second year, $3600.00. Apply: St. Vincent's Hospital, Indianapolis, Indiana. D

RESIDENCY — INTERNAL MEDICINE; AVAILABLE July 1, 1958; approved for 1 year; stipend $2700 plus maintenance. Apply: Administrator, Wilkes-Barre General Hospital,*÷ Wilkes-Barre, Pennsylvania. D



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CALIFORNIA — IMMEDIATE GASTROENTEROLOGY residency; 1500 bed hospital+ offers training in clinical, endoscopic, radiographic and laboratory procedures; U. S. citizenship required. Write: Director, Professional Services, Veterans Administration Hospital, Long Beach 4, California. D

ROTATING INTERNSHIP — APPROVED 250 BED general hospital*+ in San Francisco, with active teaching service, stipend $300 monthly and maintenance; applicants must be eligible for California license. Contact: Education Committee, St. Luke's Hospital, 1580 Valencia Street, San Francisco, California. D

ANESTHESIOLOGY RESIDENCY — APPROVED TWO year residency; integrated with other teaching programs; available July 1, 1958; maintenance and stipend. Apply to: Daniel C. Moore, MD, Director of Anesthesia, The Mason Clinic and Virginia Mason Hospital*+, Seattle, Washington. D

RADIOLOGY RESIDENCY — APPROVED THREE years complete program including radioisotopes and cobalt teletherapy, cardiovascular unit affiliation; three certified radiologists. Apply: A. Melamed, MD, Director, Deaconess Hospital, 620 North 19th Street, Milwaukee, Wisconsin. D

RESIDENCIES — MODERN 236 BED HOSPITAL; charity service and clinics; general practice 1-2 years; pathology 3 years; internal medicine; full time Director Medical Education; stipend $250 first year; $75 housing allowance. Write: Intern-Resident Committee, Cabell Huntington Hospital, Huntington, West Virginia. D

RADIOLOGY RESIDENTS—FOR 300 BED GENERAL Medical and Surgical hospital*+ with three year residency program and university affiliation; stipend range up to $3,550; additional benefits. Apply: Dr. F. G. Dickey, Director Professional Services, Veterans Hospital, Atlanta, Georgia. D

GENERAL PRACTICE AND PATHOLOGY RESIDENcies; two year approved programs; $300 plus full maintenance; 250 bed general hospital; fully accredited; 30 miles from New York City. Apply: Administrator, Community Hospital*+, Glen Cove, Long Island, New York. D

BOARD APPROVED RESIDENCIES IN GENERAL surgery, orthopedic surgery and internal medicine; stipend $2840 to $4600; citizenship required. Write: J. Melvin Boykin, MD, Manager, Veterans Administration Hospital, Lincoln, Nebraska. D

ONE 1ST YEAR SURGICAL RESIDENCY IN APproved four-year program available July 1958; please write immediately to: Dr. I. D. Steinhardt, Kaiser Foundation Hospital*+, San Francisco 15, California. D

UROLOGY—BECAUSE OF UNEXPECTED VACANCY; an appointment as a resident in urology is available at Kansas City General Hospital; applicant must meet requirements for Board certification. Apply: B. I. Burns, MD, Medical Director. D

(Continued on page 104)

THE BRIGHT SIDE

by E. K. H.

London's *Tit-Bits* has the story of an eager book salesman who, loath to miss any opportunity, started tackling the elevator operator in his hotel on the merits of his installment-plan encyclopedia.

The operator listened solemnly while the salesman glorified the vast stores of knowledge to be gained by the books he was selling. When he had finished his pitch, the elevator man shook his head.

"It would be no use to me, mister," he said. "I know lots more now than I get paid for."

•

An actor we know, opening his morning mail, came upon one of those collection letters which began: "We are surprised that we have not received anything from you—"

Blithely, the actor halted his autographing of photos and scribbled across the bill: "There is no need for surprise. I didn't send anything."

•

The man was brought before the bench charged with kicking an erstwhile friend in the stomach. He insisted, however, he had done it by accident. The judge eyed him sternly.

"Do you mean to stand there and tell me," he thundered, "that you delivered this terrific kick in the stomach by *accident?*"

"It's the truth, your honor," insisted the defendant. "He just turned around too fast!"

•

George Gobel told the Dutch Treat Club about a young actress who applied for a part on his show recently.

"You seem very young," said George. "Are you married?"

"Oh, no," answered the girl coyly. "I'll probably wind up an old maid."

"Say—that sounds like a lot of fun," said George enviously. "I'd like to try winding one up myself sometime."

•

"Oh, it isn't that I don't think she's guilty," explained the woman juror. "I just think she had a perfect *right* to be guilty."

•

Gracie Allen-ism overheard in a booth at a cocktail lounge: "George, if anybody asks me what I see in you, what shall I say?"

An actor, down on his luck, ducked into a cheap out-of-the-way lunch wagon for a bit of sustenance. To his amazement, the man working behind the counter was a fellow actor of his acquaintance.

"For heaven's sake, Rodney, what are you doing in a place like this? You've always been such a fussy chap!"

"Well," scoffed the other haughtily, "I only work here. I don't *eat* here!"

•

From Henry Morgan comes the tale of the village blacksmith who hired a new assistant.

"Pay close attention and I'm sure you'll do all right," he said to the nervous young lad. "Now first I'll take this horseshoe from the fire and place it on the anvil. When I nod my head you hit it with this big hammer."

The assistant did just as he was told. Now *he's* the village blacksmith.

"I liked you better before your father explained things to you!"

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- PARENTS' PRIVILEGE
  for parents of young children of pre-school and early school age
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  for children in grades 4, 5, and 6
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  for boys and girls of approximately junior high school age
- LEARNING ABOUT LOVE
  for young people of both sexes (about 16 to 20 years of age)
- FACTS AREN'T ENOUGH
  for adults who have any responsibility for children or youth that may create a need for an understanding of sex education

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Marion O. Lerrigo, Ph.D.
Helen Southard, M.A.

medical consultant
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Prepared for the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association

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Make your hotel reservations now for the American Medical Association's 107th Annual Meeting in San Francisco, June 23-27, 1958

A HOUSING BUREAU has been organized for the American Medical Association in San Francisco. Since all requests for rooms are handled in *chronological order*, it is recommended that you send in your application as quickly as possible.

ALL REQUESTS SHOULD BE ACCOMPANIED by a DEPOSIT CHECK for $10.00 per room made out to the AMA HOUSING BUREAU. Due to the existing crowded conditions, hotels cancel unclaimed reservations by 4:00 p.m. Therefore, a deposit is requested to ensure that your reservations will be held on your arrival date—whatever the hour. Your deposit will be credited to your account. PLEASE DO NOT SEND CASH.

CANCELLATIONS: Cancellations must be received 15 days prior to the meeting for refunds of your deposit to be made by the hotel. If sufficient time is not allowed for the hotel to reassign space, all of the deposit is forfeited.

All reservations should be cleared through the AMA Housing Bureau. All requests must give definite date and approximate hour of arrival and names and addresses of all persons who will occupy rooms requested.

ALL RESERVATIONS WILL BE CONFIRMED IF REQUEST IS RECEIVED NOT LATER THAN JUNE 8.

IMPORTANT

Due to complexities of a number of pre-A. M. A. Meetings in San Francisco, date of departure cannot be changed after reservations have been confirmed by the hotel. Physicians may reserve rooms through a prior meeting and retain them through the A. M. A. meeting, June 23 to 27, if they so specify. If departure at close of prior meeting is indicated, guests are expected to release their rooms to physicians coming in for the A. M. A. Meeting only—June 23 to 27.

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(Note: Single rooms are very scarce. Please arrange to share a twin-bedroom with another.)

PLEASE MAKE RESERVATIONS NOTED BELOW:

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Arrival _____ at _____ A. M. _____ P. M.

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NAMES OF ALL OCCUPANTS:
(Please bracket those sharing a room)

ADDRESSES:

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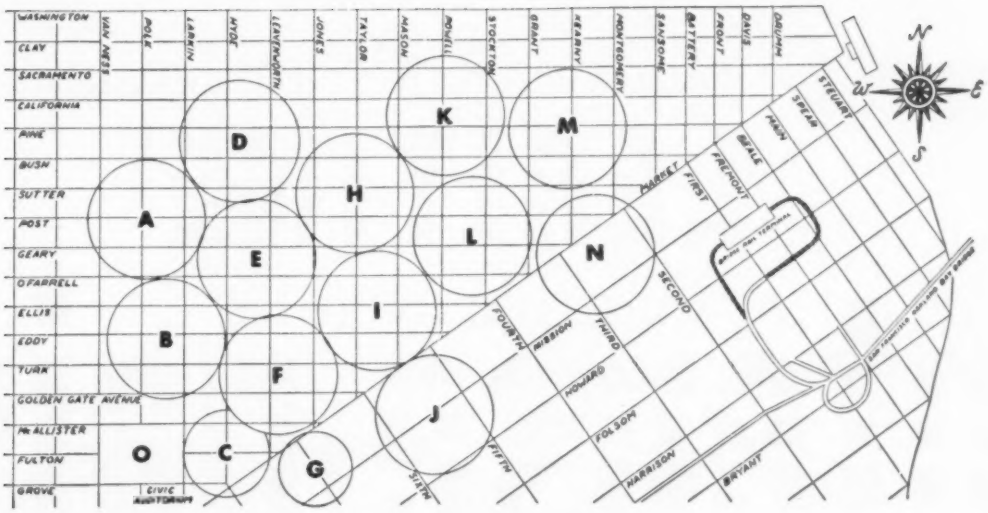
Check for $_____ payable to AMA HOUSING BUREAU is enclosed. Please enclose a *self-addressed*, stamped envelope.

MAIL COUPON TO: (Please print or type)

(Signed) _____

Address _____

City _____ State _____



San Francisco in June 1958 will be the medical capital of the world. Visitors from every country will be attending the A.M.A. Meeting. It will provide you a fruitful source of new information on the advances of scientific medicine.

Plan now for your attendance at this outstanding meeting. You will find a broad variety of subjects covered . . . and there will be ample opportunity for discussion of your problems with demonstrators in the scientific and technical exhibits.

All hotel reservations should be cleared through the A.M.A. Subcommittee on Hotels before June 8th . . . by taking a few moments now, you will assure yourself of a hotel reservation.

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H	BELLEVUE	7.00- 9.00	9.00-12.00	18.00-25.00
H	BERESFORD	6.00- 8.00	8.00-10.00	
H	BILTMORE	6.00	7.00- 8.00	
F	CADILLAC		6.00	
I	CALIFORNIAN	6.50- 8.50	8.50-12.00	19.00-21.00
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	NEW ALDEN	4.00	5.50- 7.50	
F	NEW DALT		5.00- 5.50	
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J	PICKWICK	$ 4.00- 5.00	$ 5.50- 8.50	
I	POWELL	5.00	7.00- 8.00	
E	SAN CARLOS		4.00	
L	ST. MORITZ		7.00- 8.00	
F	SHAW	5.00	6.00- 8.00	
I	SHAWMUT	3.00- 3.50	4.00- 5.50	
N	SHERATON	(Headquarters hotel—no rooms available)		
	PALACE	9.00-15.00	13.00-18.00	24.00-50.00
L	SOMERTON	4.00	5.50- 7.00	
L	SPAULDING	5.00	6.00- 7.00	
	TERMINAL	2.50	5.00- 6.00	
E	TRAVELERS	3.50- 4.00	4.00- 6.00	
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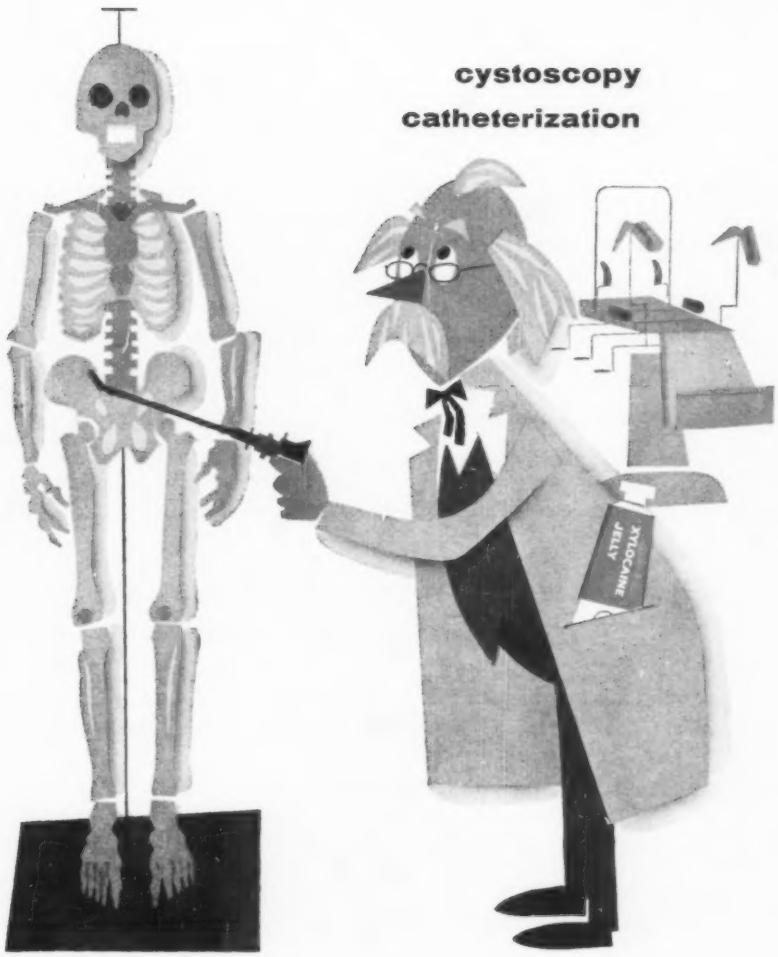

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(Continued from page 97)

ALLERGY RESIDENT WANTED — JULY 1958; APproved; must have prior training in medicine or pediatrics; Medical college of Virginia. Apply: M. E. R. Owens, MD, 1091 West Franklin Street, Richmond, Virginia. D

3RD YEAR INTERNAL MEDICINE RESIDENCY available; 3 year board approval; 500 bed Ohio Hospital; rapidly enlarging community; American and Canadian graduates only; $250 to $400 per month stipend. Box 5894 D, % AMA.

WANTED RESIDENTS — SURGERY AND GENERAL practice; available July 1, 1958; 135 bed general nospital; resort area of Delaware; good personnel policies. Write: G. R. Lorenz, Administrator, Milford Memorial Hospital, Milford, Delaware. D

RESIDENCY IN PUBLIC HEALTH — TWO YEAR board approved residency in well established health department in California; salary $755 per month; maximum age 35 years; California license required. Apply: Box 6050 D, % AMA.

APPROVED GENERAL SURGERY RESIDENCY — Vacancies 1st and 2nd years; graduates of approved schools only. Director of Medical Education, Highland Park General Hospital*+, Highland Park 3, Michigan. D

WANTED — BOARD CERTIFIED PATHOLOGIST OR eligible; under 40; to take over my private practice of pathology; temporary association to full ownership in a well established practice in midwest; excellent opportunity; top remuneration. Write: Box 5999 D, % AMA.

ANESTHESIOLOGY—RESIDENCY, AMA APPROVED 2 year program for graduates of accredited medical schools; maintenance and stipend; vacancies July 1, 1958. Apply: Dr. John Hagen, Director, Medical Education, Swedish Hospital*+, Seattle, Washington. D

PATHOLOGY RESIDENCY—AVAILABLE IN 500 BED Ohio Hospital; four-year board approved training program; rapidly enlarging community. Reply: Box 5993 D, % AMA.

PATHOLOGY RESIDENCY—AMA APPROVED WITH medical school affiliation; attractive New England vacation area; $500 per month. Apply: Dr. W. Beautyman, Pittsfield General Hospital, Pittsfield, Massachusetts. D

AVAILABLE IMMEDIATELY — APPROVED RESIdency for Board Certification in pathological anatomy and clinical pathology at a university hospital*+ and medical school. Send replies to: Box 5696 D, % AMA.

AVAILABLE IMMEDIATELY — APPROVED RESIdency for Board Certification in pathological anatomy and clinical pathology at a university hospital*+ and medical school. Send replies to: Box 5488 D, % AMA.

PATHOLOGY RESIDENCY — AVAILABLE JULY 1, 1958; approved; salary excellent; full maintenance. Write: Superintendent, Sacred Heart Hospital*+, Allentown, Pennsylvania. D

MEDICINE—RESIDENT AND ASSISTANT RESIDENT in approved program. Apply: South Baltimore General Hospital, Baltimore 30, Maryland. D

PARTNERS WANTED

WANTED — PARTNER, LOCUM TENENS OR WILL rent pleasant, active practice in Michigan waterfront town of 4,000; objective: alternate residency and practice with new man; terms open. Box 6163 F, % AMA.

LOCUM TENENS WANTED

PATHOLOGIST—BEGINNING JUNE 15 OR THEREabouts; all expenses; car furnished; salary open. J. Swihart, MD, 505 David Whitney Building, Detroit 26, Michigan. G

SITUATIONS WANTED

INTERNIST; DIPLOMATE; SUBSPECIALTY, ENDOcrinology; 2 yrs, med ofc, USN; 1 yr, research & instructor, important university; desires assn, preferably w/oppor teach; more interested in "diagnostic" than "general"; seeks progressive city, SW, NE, or NW; DNB, Woodward Medical Bureau, 185 No. Wabash, Chicago 1. I

SURGICAL RESIDENCY WANTED—1ST YEAR APproved surgical residency wanted on July, 1958; single, age 27; non-citizen; approved foreign graduate; approved U. S. internship; 10 month non-approved surgical residency; excellent references. Write: Resident Physician, 15856 Dasber, Allen Park, Michigan. I

PEDIATRICIAN—BOARD CERTIFIED; UNIVERSITY degrees in medicine and public health; presently clinical research and teaching; special interest cystic fibrosis and handicapped children; interested academic and clinical position preferred; side practice considered. Box 5933 I, % AMA.

INTERNIST — CERTIFIED; 33; UNIVERSITY trained; currently on faculty of medical school; has had experience in private practice and industrial medicine; desires association with hospital, clinic; military service completed. Box 4858 I, % AMA.

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PHYSICIAN — SINGLE; NO MILITARY OBLIGAtion; desires surgical residency or position as house doctor on surgery; preferably county hospital, or assistantship with a busy surgeon; Illinois and California licenses. Box 6159 I, % AMA.

INTERNIST—BOARD CERTIFIED; MARRIED; FAMily; military exempt; withdrawing after twelve years successful active private practice; seeking full time hospital; industrial; insurance appointment; promising foreign position considered. Box 6142 I, % AMA.

GENERAL PRACTITIONER—INTERESTED IN SURgery, Obstetrics-Gynecology; desires practice or association in community under 15,000; Illinois, Indiana, Wisconsin, California licensed. Box 172, Oakland, Illinois. I

INTERNIST—CERTIFIED; PSYCHIATRIC ORIENTAtion; 37; married; university trained; private and industrial experience; completed military recently; wishes to practice internal medicine in comprehensive medical setting; southwest preferred. Box 6161 I, % AMA.

GENERAL SURGEON — 35; MARRIED; VETERAN; Part I Boards; training 5 years; university affiliated hospital; 1 year teaching; sub-specialty and vascular experience; desires location, association, or group; 50 mile radius New York City. Box 6150 I, % AMA.

RESIDENT IN TUBERCULOSIS SURGERY WANTS additional year experience in non-tuberculosis thoracic surgery including cardio-vascular, esophageal, etc.; will accept preceptorship to thoracic surgeon; have general surgical board. Box 6149 I, % AMA.

PHYSICIAN — 46; MARRIED; GOOD EXPERIENCE in general practice, general surgery and traumatic work; desires association with general or orthopedic surgeon; will consider industrial position. Box 6158 I.

GENERAL SURGEON—FLORIDA LICENSE; FIFTEEN years surgical practice; broad background internal medicine; wishes to locate in Florida; will associate. Box 6160 I, % AMA.

PEDIATRICIAN — BOARD CERTIFIED; AGE 28; family; interested in relocating New York, New Jersey, Pennsylvania, Maryland with another pediatrician. Box 6157 I, % AMA.

OPHTHALMOLOGIST—DESIRES POSITION AS REfractionist and treatment assistant. Box 6147 I, % AMA.

UROLOGIST—39; BOARD ELIGIBLE; DESIRES ASsociation with other urologist preferably in the East. Box 6148 I, % AMA.

(Continued on page 109)

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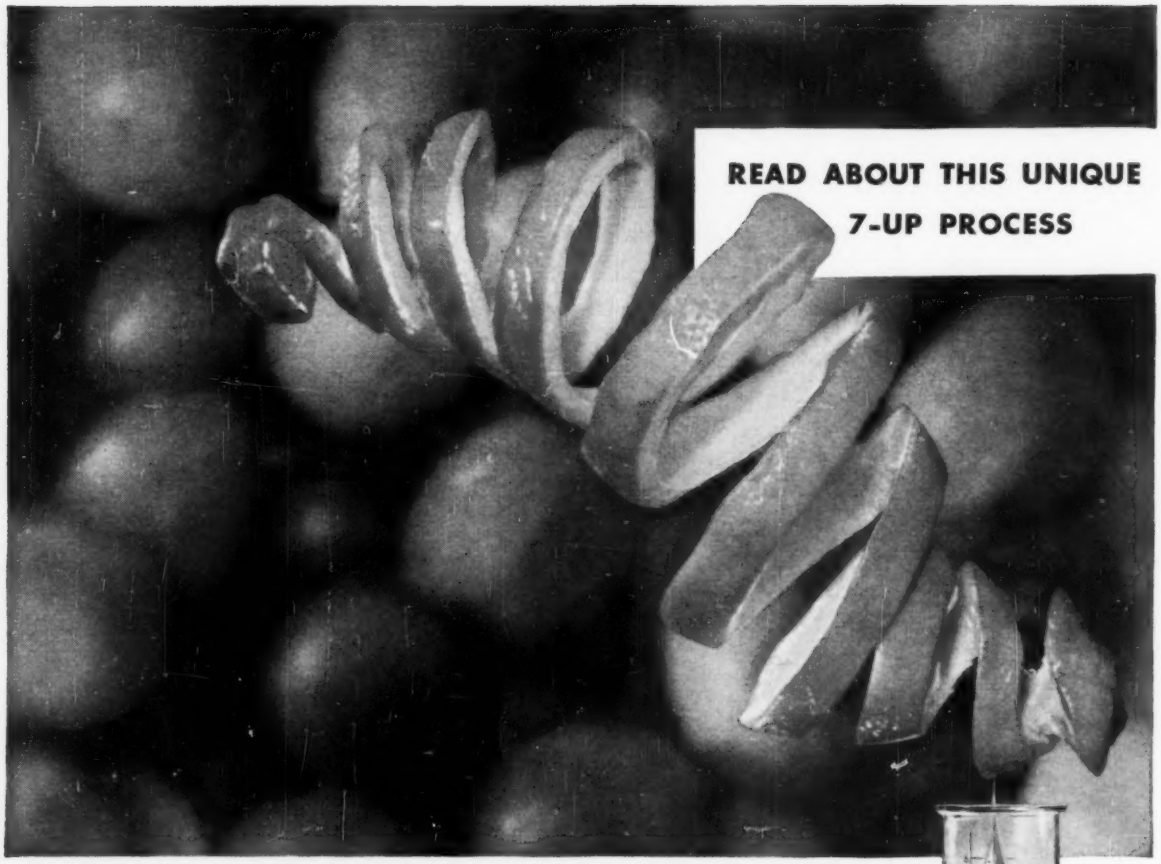

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(Continued from page 104)

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INDUSTRIAL MEDICINE — 35; OHIO, KENTUCKY license; 6 years private practice; 2 years divisional medical director (4 plants) very large manufacturing company; desires company interested in preventative medicine, encourages industrial medical education. Walter Donahue, MD, 421 South Rosedal, Lima, Ohio. I

OBSTETRICIAN-GYNECOLOGIST; BOARD ELIGIBLE; 33; married; returning from overseas appointment; desires association; partnership or group practice; licensed by exam Virginia and Pennsylvania and states having reciprocity therewith; graduate University Pennsylvania. Box 6117 I, % AMA.

GENERAL PRACTITNONER — FINISHING SERVICE commitment; wishes to associate with small group or established physician within 100 mile radius of Philadelphia; Pennsylvania license; available October 1958. Box 6073 I, % AMA.

SURGEON—FAMILY; 39; 4 YEARS GENERAL SURGERY training; 5 years hospital experience; desires group or individual association; prefer smaller southeast community; will do some general practice. Box 5942 I, % AMA.

PSYCHIATRIST—48; BOARD ELIGIBLE; LICENSED New York, Ohio; native born; 15 years general practice background; desires position with short term treatment program consultation or clinical service. Box 6115 I, % AMA.

ORTHOPAEDIC SURGEON — 30; BOARD ELIGIBLE; family; will complete resident training November 1958; military obligation fulfilled; desires association with individual or group of board certified orthopaedists. Box 5987 I, % AMA.

INTERNIST—MAYO TRAINED; 31; FAMILY; U. S. citizen; veteran; four years private practice; fluent Spanish, French, Italian; available in Europe January 1st; seeks challenging opportunity in Europe. Box 6001 I, % AMA.

PEDIATRIC ALLERGIST—BOARD CERTIFIED PEDIatrician; completing board qualifying pediatric allergy training at present; desirous association with individual or small group; interested in teaching; available about December 1958. Box 6003 I, % AMA

AVAILABLE—AMERICAN BOARD SPECIALISTS TO head departments, join groups, etc.; physicians for private practice, assistants or associates, industry, public health. Please write for recommendations. Shay Medical Agency, 55 E. Washington, Chicago. I

WELL TRAINED THORACIC SURGEON AVAILABLE January 1st; three years' training; general surgery; two years' training, thoracic surgery, teaching hospitals. Medical Bureau, Burneice Larson, Director, 900 North Michigan Avenue, Chicago. I

INTERNIST—CERTIFIED; 34; SPECIAL TRAINING hematology; university county hospital trained; military service completed; desires association with clinic, hospital, group or company. Box 6000 I, % AMA.

EXPERIENCED DUTCH RADIOLOGIST—DESIRES TO locate U. S. medical center or school; specialist neuroradiology, encephalography; fluent English. Box 6049 I, % AMA.

GENERAL PRACTITIONER — AGE 33; FAMILY; military requirements fulfilled; 6 years general practice; desires association with group practice in midwest, southwest or southeast. Box 6100 I, % AMA.

GENERAL PRACTITIONER — AGE 42; MARRIED; wishes to relocate in Piedmont section of North Carolina; as associate, assistant or in small group in urban area. Box 6108 I, % AMA.

WANTED—ASSOCIATION IN GENERAL SURGERY; five years university type training; part I boards completed; awaiting part II; married; one child. Box 6112 I, % AMA.

UROLOGIST—CERTIFIED; AGE 43; DESIRES ASSOciation, group or private practice; any desirable location; competent and personable. Box 6096 I, % AMA.

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CALIFORNIA—SAN DIEGO: GENERAL PRACTICE established 17 years; thriving city; excellent hospital facilities and exceptional surgical privileges for GP; well equipped office; complete files, reasonable rent; gross income more than $50,000 last year; terms may be arranged to pay $400 per month; specializing; moving out of town; will introduce. May contact physician owner directly through Main Post Office Box 1768, San Diego 12. P

CALIFORNIA—VERY ACTIVE GENERAL PRACTICE in San Francisco bay area for sale; am taking a residency in July and must sell as soon as possible; very reasonable terms. Box 5899 P, % AMA.

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ILLINOIS — GENERAL PRACTICE; DANVILLE; growing agricultural-industrial city 50,000; two open hospitals serving 120,000; office equipment, complete, modern office location with parking unsurpassed; grossing $60,000; will introduce one or two physicians; one can easily gross $30,000 first year; name terms; reason for abandonment marital. D. L. Dickerson, MD, 107 North Franklin Street. P

ILLINOIS — UNOPPOSED GENERAL PRACTICE grossing over $40,000 yearly; open staff hospital; modern home with five room office; will finance to suit individual. Box 6089 P, % AMA.

(Continued on page 111)

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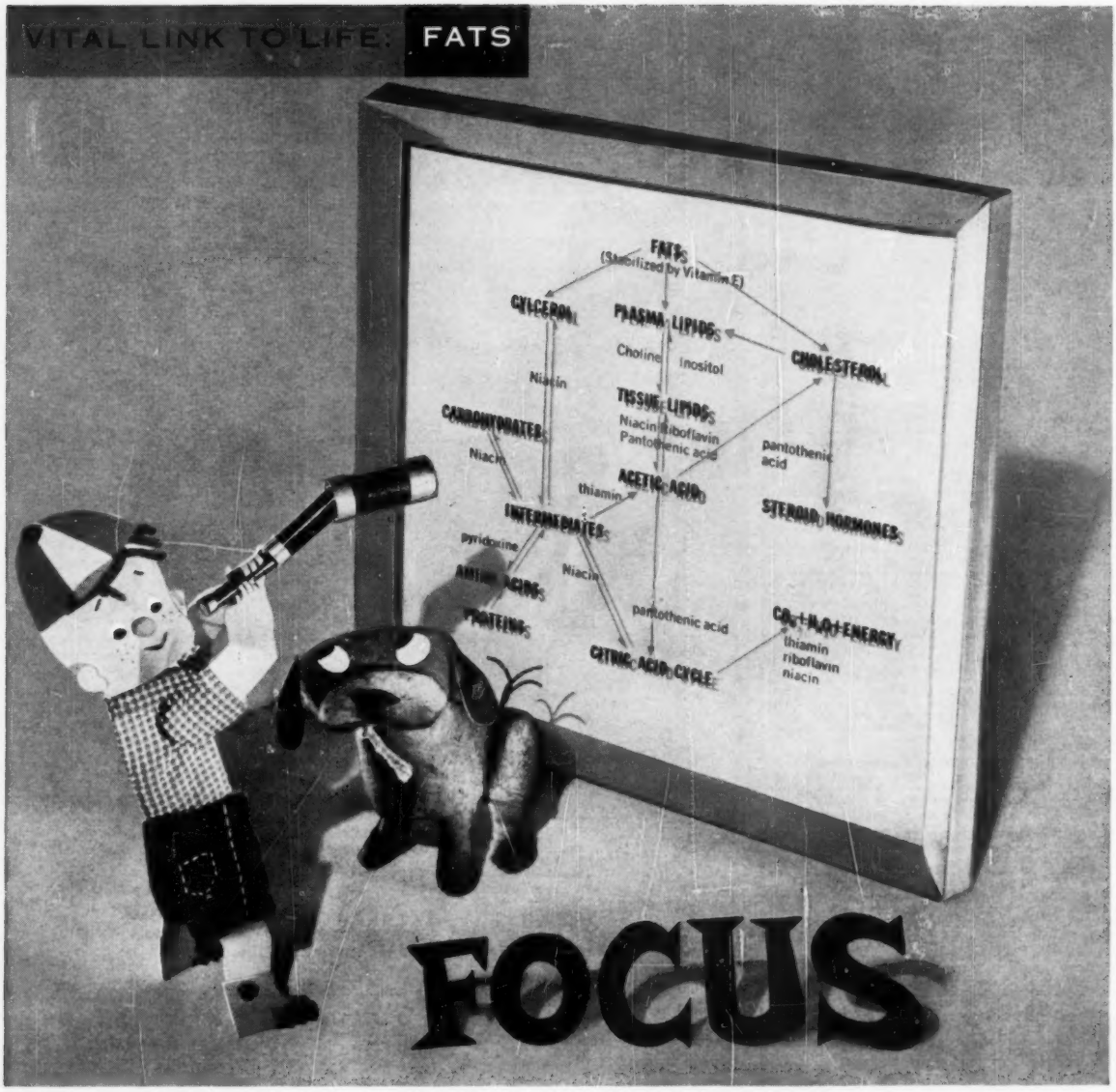

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(Continued from page 109)

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MICHIGAN — FOR SALE; equipment and established general practice of the late C. M. Mercer, MD, FACS; 30 years one location; large 9 room suite including laboratory, in downtown bank building; 3 hospitals nearby; suitable for one or two doctors; reasonable terms. Contract: Mrs. C. M. Mercer, 3 South La Vista Boulevard, Battle Creek, Michigan, Woodward 5-3845. P

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OHIO — AVAILABLE IMMEDIATELY; GENERAL practice; small town; Logan county; drawing population 6,000; modern home, office available. Contact: D. W. Beach, MD, Huntsville, Ohio. P

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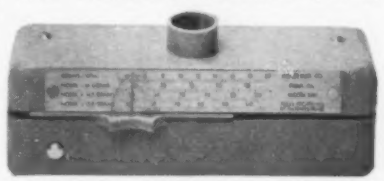

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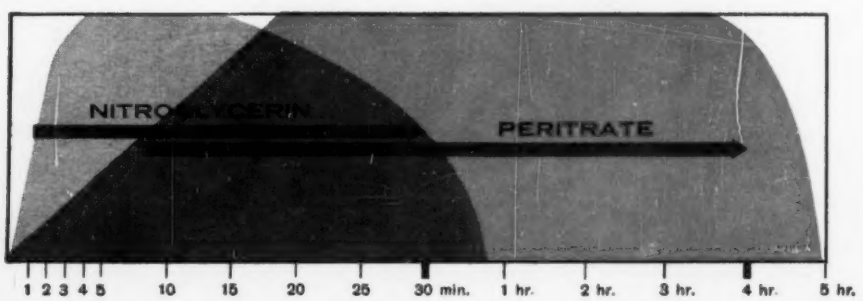

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